

THE DISEASES OF CATS, AND THEIR TREATMENT.

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ADMINISTRATION OF MEDICINE.



GIVING MEDICINE.

IN the treatment of the diseases of the cat, the correct method of administering whatever medicaments are deemed necessary is a most important consideration. To the uninitiated and timid the task is generally a difficult

one, and may, in some cases, appear almost impossible; but with a little practice, aided by courage and determination, the difficulties can nearly always be overcome. The administration of medicine, however, is seldom so easy in the case of the cat as in that of the dog.

It is not necessary to open the mouth. The operator grasps the head with his left hand, and taking the spoon in his right he slowly and carefully drops the liquid between the teeth, or into the space between the cheek and teeth, at the angle of the mouth. For the cat, a coffee-spoon is preferable to a tea-spoon, and care must be taken that too much is not poured into the mouth at once. The dose should be administered drop by drop, and time allowed for swallowing.

DISEASES OF THE STOMACH.

Vomiting, though a symptom common to many diseases, may be quite natural in some instances, such as over-feeding or during the weaning period, when the mother-cat eats a lot of animal food and then brings it home and vomits it up for her young kittens to feed upon.

The act consists of ejecting the contents of the stomach up through the gullet and then out of the mouth.

The causes of vomition are various: Worms travelling from the bowel into the stomach, emetics, expectorants, poisons, foreign bodies (as hair, cork, pins, etc.); bad or altered food, blood-poisoning, distemper, gastritis, tumours, tuberculosis, jaundice, diseases of the kidneys, etc., may produce it.

It may also occur from parasites in the ear, foreign bodies in the mouth, and as a symptom of brain disease, such as meningitis.

Some cats are so gentle that the mouth can easily be opened by means of the index finger and thumb of the left hand acting as a wedge between the jaws. The palm of the hand rests on the top of the head, while the finger and thumb gently but firmly press the cheeks at the angle of the jaws inwards, until they intervene between the finger and thumb of the operator and the posterior teeth of the patient.

The jaws being thus kept open, and the head at the same time raised, the right hand of the operator drops the pill or powder at the back of the mouth between the tongue and palate. This having been accomplished, the right hand is passed under the lower jaw, so as to keep the head raised until the animal swallows, while the left hand is withdrawn from its previous position and the jaws allowed to close, thus facilitating the act of swallowing.

For the administration of liquid medicine

which should be removed if possible. When due to foreign bodies or altered food, an emetic (especially the hypodermic injection of $\frac{1}{4}$ to $\frac{1}{8}$ grain of apomorphine hydrochloride) would most likely remove the source of trouble. If the foreign body cannot be removed by simple means, an operation may be deemed necessary. If due to inflammation of the stomach, bismuth and aerated soda-water are of great value. Ice and cocaine or chloretone are occasionally useful when these have failed. Sometimes it is necessary to wash the stomach out with mild antiseptics. If of nervous origin, a hypodermic injection of $\frac{1}{4}$ to $\frac{1}{2}$ grain of morphine, or

five-minim doses of tincture of opium or bromide of potassium, given by the mouth, may prove successful. When resulting from tumours or tuberculosis, humanity dictates that the lethal chamber should be called into requisition and the animal put out of its misery. Easily assimilable and non-irritating food only should be given for a few days. Aërated soda-water forms the best drinking fluid.

Gastritis, or inflammation of the stomach, is sometimes called gastric fever, and when of a mild type, gastric catarrh. Its causes are variable. It may be due to altered or decomposed food, distemper, microbes of various kinds, large doses of emetics or aperients, mineral poisons, chills, absorption of dressing applied to the skin, or licking the same off. It is also caused by worms, especially the broad-necked tapeworm (*Tænia crassicollis*), travelling into the stomach and setting up irritation. Again, diseases of the uterus, liver, kidneys, and other organs give rise to gastritis. It frequently rages as an epizootic, causing considerable mortality in some catteries, especially after cat shows.

Symptoms.—The disease is ushered in by sudden vomiting of the food, followed by the repeated rejection of ropy mucus, and then, if the case is severe, this is succeeded by a thin, clear, greenish yellow or bloody fluid; saliva flows from the mouth, the thirst is great, especially for cold water, which is generally expelled almost as soon as taken; there is a distressed appearance, restlessness, or a frequent shifting of the posture. As a rule, the animal prefers to lie on its belly full length, with its limbs resting on cold objects.

Pressure on the region of the stomach causes moaning and sometimes vomiting. After the lapse of some time, when a fatal termination is advancing, the eyes appear sunken, the pupils become dilated, the expression is sad, the animal becomes cold and indifferent to his surroundings, the mouth gives off an offensive odour, and the coat is dull, open, and lustreless. The animal dies either in a comatose state or from sudden failure of the heart during a fit of vomiting.

Treatment.—If recognised early, an emetic is sometimes very useful in cutting short the complaint. No food or ordinary water should be allowed until twenty-four to forty-eight hours have elapsed since the last vomiting; but a teaspoonful of Brand's essence of beef jelly and two to four teaspoonfuls of aërated

water should be given every four hours. Bismuth subnitrate or carbonate in five-grain doses may be shaken on the tongue an hour before these two latter are administered.

If this means of treatment should prove ineffectual after twenty-four hours, one may conclude that the disease is of a severe type, and in this case one to five minims of the liquid extract of opium in a little mucilage, or chloretone, $\frac{1}{2}$ to $2\frac{1}{2}$ grains, should be given every three hours. Feeding by means of rectal suppositories, or injection of an ounce of milk containing a little common salt, may be attempted. Finally, if this fail, washing out the stomach with borax or boracic acid, or chinisol and warm water, and a hypodermic injection of bullock's or sheep's serum might be tried. In gastric inflammation due to infection the hypodermic injection of quinine hydrochloride or trichloride of iodine will sometimes answer when everything else has failed. Cocaine and orthoform have no advantage over opiates, especially the denarcotised preparations, in soothing the stomach. Ice in small pieces pushed down the throat sometimes answers in assuaging the thirst when the soda-water does not. In the chronic form, doses of $\frac{1}{4}$ to $\frac{1}{2}$ grain of calomel or mercury with chalk given with bismuth three times a day are beneficial in many instances.

Enteritis, or inflammation of the intestines or bowels, frequently co-exists with gastritis, and then the disease takes on the term of *gastro-enteritis*. The causes, like those of gastritis, are various. It may be due to infection, bad food, drugs, foreign bodies, chills, distemper, intussusception or irritating enemas, etc. There also seems to be a special contagious type of this disease which frequently causes great mortality in catteries, especially with kittens. Generally the small intestine forms the seat of the disease, which may in rare cases, however, extend the whole length of the bowel, which is sometimes lined with a croupy or diphtheritic membrane.

The *symptoms* are restlessness, great pain, frequent crying or moaning, offensive and profuse and frequent diarrhoea, the dejections varying in colour and consistence and frequently containing blood, and sometimes vomiting, especially when the stomach is implicated; thirst is intense, food is refused, the animal is cold, haggard, and depressed; its fur is dull, open, and lustreless, and becomes soiled, giving off an abominable odour. When the abdomen

is manipulated, the animal cries or moans from the pain caused. If the pupils are dilated and the expression has an anxious appearance, and emaciation is rapid, a fatal termination may be anticipated.

The *treatment* varies according to the cause. If the case is seen in the early stage a tea- to a dessert-spoonful of castor-oil containing 1 to 2½ minims of liquid extract of opium may be given at once, to clear out any irritating material from the bowels and also to allay pain and irritation; or morphine in $\frac{1}{16}$ to $\frac{1}{12}$ grain doses may be injected under the skin every four hours. Bismuth salicylate, in five-grain doses, should be dropped on the tongue about the same time. Starch enemata containing liquid extract of opium may also be administered. Boiled milk containing bicarbonate of soda should be given in small and repeated quantities.

Turpentine stupes frequently applied to the abdomen are recommended, but, where this is objected to, the floor of the abdomen may be painted with tincture of capsicum, or tincture of iodine, until soreness is produced, the hair being first clipped off.

In those cases of epizootic nature, isolation is called for. The food and surroundings should be changed, and the catteries and utensils thoroughly cleansed and disinfected. In the chronic form a powder composed of bismuth salicylate 2 to 5 grains, and β -naphthol 1 to 2½ grains, should be shaken on the tongue three times a day. Milk and rice form the best diet.

Diarrhœa, like vomiting, is not a disease of itself, but an expression of many different affections. It may be salutary or otherwise. It may be due to aperients, irritating or indigestible food, microbes, diseases of the bowels, kidneys, and liver. It frequently results from distemper or gastro-enteritis, tuberculosis, intestinal catarrh, and from licking applications put on the skin in the treatment of skin affections. Sour milk, tainted milk or fish, and chills will also induce it. In kittens improper food, especially during hot weather, is a common cause.

The *symptoms* are a looseness of the dejections from the bowels, which are passed several times a day. The stools vary in colour according to the food taken by the animal, or according to the severity of the cause; they are generally of a very offensive odour, and may contain blood.

Treatment.—If the cause of the diarrhœa is due to irritating food, a dose of castor-oil will be beneficial. When due to catarrh of the bowels, the carbonate, subnitrate, or salicylate of bismuth, in five-grain doses, two or three times a day, is the most appropriate treatment. If it is associated with distemper or typhus, the bismuth salts mentioned above, or tannablin or tannigen, in 2½- to 5-grain doses, are suitable. For chronic diarrhœa, 2½ to 5 grains of salicylate of bismuth, with 1 to 5 grains of β -naphthol, given three times a day on the food, is generally followed by recovery.

Failing this, a mixture composed of dilute sulphuric acid, concentrated infusion of cloves, and concentrated infusion of hæmatoxylin should be tried.

When the diarrhœa is due to irritation of the so-called large or posterior bowel, injections containing starch, laudanum, and tannic acid should be used.

As long as the diarrhœa lasts, no meat or meat infusions should be given, but milk, rice-pudding, bread and milk, and such-like food are suitable.

Constipation is an impaction of fæces in the hind bowel, and is generally due to weakness of this portion of gut, or results from a cleanly animal having no place to evacuate its fæces in. Sometimes it is due to a ball of fur, and occasionally foreign bodies, such as cat's-meat skewers, being swallowed along with the meat by a greedy animal. When due to paralysis of the bowel, which is occasionally seen in young cats, the abdomen becomes distended by the fæces in the bowel. It also occurs as a symptom of spinal paralysis. The non-passage of fæces seen in cats when not well and not taking solid food must not be confounded with constipation.

The *symptoms*, as a rule, are the non-passage of fæces for some time, distension of the abdomen, and impaction of the bowel with fæces which can be felt by manipulating the abdomen.

Treatment.—A dose of castor-oil and an enema of soapy water or glycerine will generally put matters right. If these means do not succeed, massage or kneading of the bowels, by grasping the abdomen with the hand and alternately compressing and relaxing the grasp, will assist to stimulate the intestines to force on their contents. Of course, this only applies when impaction is due to soft material and not hard foreign bodies, which, in this latter

case, should be removed by the fingers or forceps. If any irritation of the mucous membrane, evidenced by frequent straining as if to pass fæces, remains after the bowels have been relieved, an enema of warm salad-oil, containing a few drops of liquid extract of opium, will allay it, and prevent straining. In case of the bowel remaining weakened or paralysed so as to bring about a recurrence of the constipation, pills containing $\frac{1}{8}$ grain of the alcoholic extract of nux vomica should be administered morning, noon, and night *after* food.

WORMS, OR INTERNAL ANIMAL PARASITES.

Cats, like all other animals, are liable to be infested with worms, which may not cause any disturbance, unless in great numbers or when another disease is in existence.

The **Common Round-worm** is very prevalent in young kittens, generally when they are living on milk, upon which these worms thrive.

Their natural residence in the cat is in the small intestine, but sometimes they wander from here into the stomach, and set up vomiting and occasionally convulsions.

Treatment.—The worms should be expelled and the animal fed on nutritious and stimulating food, such as raw fish, raw meat, and fresh birds. The milk, to which is added a pinch of salt, should be boiled. The best remedy to expel these worms is santonin given along with or followed by an aperient. The following is a convenient formula:—

Santonin	1 grain.
Calomel	$\frac{1}{2}$ "

This powder is to be dropped on the back of the tongue of an adult cat after fasting twelve hours, every other morning, until four doses have been given. Half this quantity is suitable for a cat three or four months old, and a quarter for a kitten of a month to six weeks of age.

The commonest **Tapeworm** of the cat is the *Tænia elliptica vel felis*, with which fifty per cent. or more are affected. It is caused by fleas, lice, and mange-mites which have at some time or another infested the cat.

They do not seem to cause much harm, even when numbering hundreds. In one case that I encountered the cat was in the pink of condition, and yet I found 700 of these worms.

It is a delicate tapeworm with joints resembling a cucumber in outline. The ripe joints, which are often of a reddish tint, fre-

quently become detached, and pass with the fæces, on which they are seen. They are generally termed by fanciers *maw-worms*.

Treatment.—The worms should be expelled, and fleas, lice, or mange-mites destroyed, so as to prevent a recurrence of the trouble.

Another tapeworm of the cat is the *Tænia crassicollis*, or broad-necked species. It is seen only in cats that kill and eat rats and mice, in the liver of which the larval form of this parasite resides.

It is a big, coarse tapeworm, measuring eighteen to thirty inches in length, and having no well-defined neck.

Treatment.—For the expulsion of tapeworms there are many remedies, the best of which are areca nut, kamala, oil of male fern, pomegranate, and kousso, but as the dose of these in the crude is generally too bulky for the cat, it is advisable to give either of them, with the exception of the male fern, in their alkaloidal form, as:—

Koussein	$\frac{1}{2}$ to 2 grains.
Kamalin	$\frac{1}{2}$ to 2 "
Arecoline	$\frac{1}{4}$ to $\frac{1}{2}$ grain.
Pelletierine	$\frac{1}{4}$ to $\frac{1}{2}$ "

Any one of these may be given either in pill or tabloid form, or rubbed up with milk sugar, as a powder on an empty stomach after the animal has fasted at least twelve hours, and repeated every third or fourth morning. A dose of castor-oil or jalap should be given an hour after. The oil of male-fern is best administered in a capsule. Powdered pumpkin seed may be sprinkled on the food.

DISEASES OF THE KIDNEYS.

Diseases of the kidneys, such as degeneration, fatty degeneration, parasitic disease, tuberculosis, cancer, acute and chronic Bright's disease, and calculi are not rare, but, as the space at our command is limited, we only mention them.

Incontinence, or the involuntary passage of urine, is usually due to weakness of the bladder, brought about by over-distension. It sometimes results from injury to the spine and calculi.

The *treatment* that is best suited for this is the administration of $\frac{1}{8}$ grain of the alcoholic extract of nux vomica and $\frac{1}{2}$ grain of quinine in a pill three times a day. If there be irritability of the bladder, soda bicarbonate 2 grains and extract of henbane $\frac{1}{8}$ grain in a pill should be given.

Retention of urine is generally caused by a calculus or chalky material blocking up the urethra or canal leading from the bladder, and preventing the exit of the fluid. If relief is not given to the bladder—that is, if the obstruction is not immediately removed—the urine decomposes and then sets up inflammation of the bladder, and death takes place from uræmic poisoning.

Symptoms.—The cat seems in pain, and makes ineffectual attempts to pass its urine; it strains to no purpose; it seems restless, getting up, lying down, rolling on its side, swishing its tail, looking towards its side, and crying. After a time the animal becomes drowsy and indifferent. If the abdomen is manipulated, the bladder will be felt to be distended, hard, and painful.

Treatment.—The only rational treatment is to remove the obstruction and pass the catheter immediately, a special silver catheter, half the size of the smallest human catheter, being required for this purpose. If the urine is bloody, it may be necessary to wash out the bladder with a warm solution of boracic acid and alkalis and sedatives, but no meat or meat extracts should be given.

DISEASES OF AIR PASSAGES AND LUNGS.

A Common Cold, or coryza, or acute nasal catarrh, or cold in the head, is caused by exposing the cat to the inclement weather, or washing it and not thoroughly drying afterwards. It may also be due to the irritating vapours of chloroform or ether used by inhalation to produce anæsthesia. Letting a cat out in the cold and wet after it has been used to a warm, dry dwelling sometimes results in a cold. It is not contagious, but is frequently mistaken for distemper.

Symptoms.—There is frequent sneezing, and sometimes a cough; a clear watery discharge trickles from the corner of the eyelids and nostrils. After a time this discharge becomes gluey, thick, and yellowish or greenish; the eyelids become partially closed, and the haw protrudes over the front of the eyeball; food is refused, or sparingly eaten; the fur is dull and open; warm or dark corners are sought for; the animal trembles and seems miserable. If the throat is sore, there is a cough; the breathing is wheezy, and a discharge may issue from the angles of the mouth. These symptoms generally pass away in a few days.

Treatment.—Where many cats are kept, an

animal suffering from “a cold” should be isolated from the rest as soon as possible, as it is difficult to distinguish a simple case of “catarrh” from the early stage of a case of distemper. A warm place, well ventilated, but free from draughts, is essential.

Raw meat, scraped and given three times a day, is the best diet. Fish, milk, bread-and-milk, or rice-pudding should be offered.

A small pile of half a grain of quinine sulphate should be dropped at the back of the mouth three times a day. The nostrils and eyelids should be sponged with a warm solution of boric acid, containing eight grains to the ounce of water, and afterwards smeared with a little white vaseline three times a day. Sanitas or turpentine should be sprinkled on the floor of the room. Great relief is often given by inhaling the fumes of eucalyptus oil dropped into a jug of boiling water.

Chronic Nasal Catarrh, sometimes called “feline glanders,” differs from the preceding complaint, inasmuch as it runs a longer and more persistent course; it may, however, follow on simple catarrh which has been neglected. Distemper is one of the commonest causes of it, but it is also seen after diphtheria. It may occur as a symptom of tuberculosis, foreign bodies in the nasal channels, malignant growths, such as sarcoma or cancer attacking the turbinated bones, diseased bone, or teeth, etc.

When neglected, it may last for months or even years, and is frequently incurable.

Symptoms.—There is a persistent gluey, odourless, or sometimes foetid discharge either of a gelatinous or yellowish appearance, with or without streaks of blood from the nostrils, the outsides of which are sometimes ulcerated. The throat may be swollen; the appetite and general condition of the animal are often preserved. Sometimes there is an abscess in the inner corner of the eye.

Treatment.—In those cases that are due to malignant tumours or tuberculosis, and, in consequence, incurable, merciful destruction of the animal is called for. If due to foreign bodies—as fish-bones, pieces of grass, or food, or to diseased teeth—they should be removed.

Syringing the nostrils, so as to wash the diseased lining membrane of the nasal channels, with some mild antiseptic is the only means to insure success. The mode of procedure is this: A skilled assistant must firmly secure the animal between his hands—that is, he holds the limbs firmly—then the operator grasps the

head with his left hand, taking care to keep the mouth shut by means of the thumb and index finger, and steadies it on the table; and with the right hand he carefully and gently passes the pipe of the syringe up one of the nasal channels and then presses out the fluid. When this is finished, the other nostril is served the same.

The following is a suitable formula for the solution to be injected:—

Alum	30 grains.
Boric Acid	2 drachms.
Liquid Extract of Hydrastis	2 „
Warm Water	$\frac{1}{2}$ pint.

This should be used every other day until some benefit is derived from it. If the disease is not amenable after a fortnight's adoption of this treatment, the following should be substituted:—

Tincture of Iodine (B. P.)	10 minims.
Glycerine	6 ounces.
Warm Water	1 ounce.

Pills of iron, quinine, arsenic, and such-like, as well as plenty of flesh food along with cod-liver oil, should be given. Fresh air is invigorating, and a change to the seaside sometimes does miracles. Eucalyptus sprinkled about the cat's box is useful, because it acts not only as an antiseptic, but as a stimulant to the mucous membrane of the nostrils.

Bronchitis, or inflammation of the bronchial or air tubes, may occur as a sequel to catarrh or during its course, and may also accompany distemper. It is also due to small worms in the tubes; washing followed by exposure to draughts; medicine, especially light powders, going down the windpipe, etc. It is frequently due to tuberculosis.

Symptoms.—There is a frequent cough, the breathing is wheezy, and sometimes quickened or difficult. The desire for warmth is great; there is shivering, and perhaps a discharge from the eyes and nose. On listening to the chest by means of the stethoscope, wheezing or hissing or bubbling sounds will be heard.

Treatment.—The animal should be kept in a constant temperature of 60° F., and have warm milk and beef administered to it. The throat and sides should be rubbed with oil of mustard. Inhalations of steam are useful when expectoration seems difficult. Kermes mineral (two grains) and powdered squill (one grain) should be given.

Pneumonia, or inflammation of the substance of the lungs, may be due to various

causes, such as exposure to cold, chills after washing, medicines passing down the windpipe, foreign bodies, blood-poisoning, small worms, and principally distemper or tuberculosis. It may be associated with pleurisy or bronchitis, and is then termed pleuro-pneumonia or broncho-pneumonia respectively; and also sometimes with a purulent collection or tuberculosis, and then it receives the names septic pneumonia or tubercular pneumonia, or phthisis.

Symptoms.—At first there is intense shivering, a great desire for warmth, loss of appetite, dull appearance, dull cough, sickness, difficulty of breathing, which after some days becomes laboured or panting. On auscultation of the chest the characteristic sounds may be heard. At first fine crepitations, then a day or two after the tubular or blowing sounds, and when convalescence sets in the fine crackling or crepitating sounds are heard again. The cough becomes more frequent and the appetite increases. On the other hand, if there be no improvement, the coat becomes dull and open, the eyes sunken, and the pupils dilated; the flanks move up and down like a pump-handle, and the breath becomes foetid; food is totally refused, and diarrhoea sets in, a fatal termination is to be anticipated.

Treatment.—The animal should be kept in a temperature of 60° F., and fresh air, but no draughts, allowed. The sides are to be rubbed with oil of mustard, or painted with tincture of iodine, or an ointment composed of one part of tartar emetic to eight of lard. Quinine sulphate, $\frac{1}{2}$ grain; alcoholic extract of nuxvomica, $\frac{1}{16}$ grain; and extract of digitalis, $\frac{1}{8}$ grain, in a pill, may be administered every four hours, and nourishing food given. In the case of tubercular pneumonia, which is generally chronic, the animal should be destroyed.

Pleurisy, or inflammation of the covering of the lungs or internal lining of the chest cavity, in the cat as well as in the dog, is chiefly due to tuberculosis. It may, however, result from pneumonia, abscess in the lung, cancer, parasites, injuries, foreign bodies, gunshot wounds, cold, etc. It is generally accompanied with a dirty sanious, or clear amber-tinted, or portwine-coloured fluid, sometimes containing yellowish-white strings of lymph floating in it in the chest cavity. One or both sides may be affected. It is usually fatal.

Symptoms.—The cat has an anxious, painful facial expression, and moans, or rather grunts,

and sometimes attempts to bite when the chest is touched or made to move; the abdomen is retracted, and the breathing, which is short and jerky, seems to be performed by the flanks. There is a slight or suppressed cough, but this is often absent. The animal wastes away, the coat becomes dull and open and lustreless, and the hairs are easily pulled out. The creature hides under the furniture and refuses its food, and when a fatal termination is at hand, the flanks move up and down like a pump-handle, the breathing becomes difficult and suffocative, the mouth, which is offensive, being opened at every inspiratory and expiratory effort; the tongue becomes purplish, the elbows turn out, the cat assumes a squatting position on all-fours, and a fœtid diarrhœa sets in.

Treatment.—Although generally fatal, treatment may be desired to be attempted. The chest should be painted with tincture of iodine or oil of mustard; if there be much pain, a hypodermic injection of morphine will prove useful, and a pill composed of $\frac{1}{4}$ grain powdered digitalis leaves, $\frac{1}{2}$ grain sulphate of quinine, and 1 grain of iodide of potassium, administered three times a day. When the breathing becomes difficult in consequence of the accumulation of fluid in the chest cavity, it may be deemed advisable to draw the fluid off by means of a trocar. Nourishing liquid food, such as milk, Mosquera's beef jelly, or eggs, should be given, little and often.

DISTEMPER.

Distemper is a contagious, inoculable fever, due to a specific microbe (the cocco-bacillus, or pasteurilla of Lignières), and is similar, if not identical, to that causing distemper in the dog. Krajewsky, Laosson, Lignières, and others have experimentally demonstrated its identity, but I have never observed the cat naturally giving the dog distemper, nor *vice versa*, and I believe this is the experience of most veterinary surgeons in this country.

The microbe of distemper—which belongs to the same class of micro-organisms, the pasteurilla, that causes influenza in the horse, fowl cholera, swine-fever, guineapig distemper, etc.—is generally found in the blood, which it alters to such a degree as to make so profound an impression on the system as to diminish its natural resistance to the ordinary germs, which become, in consequence, increased in virulence, and cause the various phenomena

by which we know the disease. It is difficult to detect in the body after about a week.

The disease varies in severity according to the degree of virulence of the microbe. If this is very virulent, it causes a *very acute* or *septic disease*, as is observed in the typhus or gastro-enteric outbreak, which kills off a large number of animals within a few days or even hours. If it is of a milder strength, we get the *subacute form with localisations*, such as we usually see in distemper. There is also a *chronic form*, which lasts a long time, and which tries the patience of the owner as well as the vitality of the sufferer. Finally, a *chronic wasting* or *cachectic form* is sometimes observed; it resembles the "going light" in birds and other animals, and may be mistaken for starvation, which it simulates very much.

The microbe may exist in a healthy cat's body for weeks without causing it any disturbance until, perhaps, the animal catches cold, or is depressed in some other manner. However, an apparently healthy animal with this microbe in it may be infective for other cats.

Period of Incubation.—This varies according to the degree of virulence of the microbe and the state of the cat's system and the surroundings in which it is kept. A very virulent infection has a much shorter period of incubation than a mild infection. Whereas the former may cause distemper in from two to five days, the latter takes from one to three weeks. It seems doubtful whether the specific microbe causes the symptoms we usually see in distemper, or if these are due to a secondary infection resulting from the invasion of the normal microbes of the body, which have become virulent, and prey upon their hosts.

Duration of the Disease.—This, like the period of incubation, varies also according to the degree of virulence of the virus. A very virulent virus kills in a few days or even hours, or the animal recovers very quickly. It is not so with a virus of a milder degree of virulence, which may cause symptoms that take from one to five or six weeks to disappear, if the animal recover. In other cases the disease shows itself in so mild a form that it appears like an ordinary catarrh, and recovery is established within a few days.

In a few instances death takes place suddenly before any premonitory symptoms have had time to develop.

The principal sources of propagation of the infection are cat shows, catteries (especially those belonging to people who exhibit), homes for lost and stray cats, and institutions that take in these animals as boarders. The cat dealer's shop is not free from blame—many newly purchased kittens develop distemper a few days after purchase, contracted, no doubt, at the dealer's. Many cases have been traced to the cattery where the female has been sent to stud. Hampers, cages, and persons coming from infected catteries are so many media of contagion. Even if a cat has apparently recovered from the disease, it may still give off infection and contaminate other cats for a variable but uncertain period.

Although the disease may be seen at all times of the year, it is most prevalent during spring and autumn, especially if the weather is changeable and wet.

Moisture of the atmosphere favours the increase of distemper. Wet, following very dry weather, continuous dampness and rain, all predispose an animal to the disease. Where catteries or homes for lost and strays are continuously being washed out and not properly dried, especially in damp weather, before the cats are allowed into the rooms, distemper is very prevalent.

Where too many cats are crowded into a given space, especially if the place is badly lighted and not very well ventilated, this is favourable for the contamination of the inmates.

The mortality varies according to the breed of the animal, its surroundings, and the degree of virulence of the infection. Seasons and periods have also some bearing on it. Common-bred cats allowed to roam out in the open at their will are more likely to recover from the disease, but if confined to cages or in catteries, or in the house, the mortality is quite twenty-five per cent. The long-haired cats are less resistant against it, and as many as fifty per cent. die. In the Siamese breed of cats, the fatality is as high as ninety out of every hundred. The younger the animals, the greater the death-rate; yet, on the other hand, if old animals are very fat or anæmic from want of fresh air and exercise, the mortality is just as high.

Many cats are resistant at one time against the infection, others have it in a mild form, and yet others have it severely; but this does not always prevent them from having it again at some future period. My experience is that a

cat may frequently have a recurrence of distemper at least two or three times, and then succumb to it.

One season it may appear as a contagious catarrh, another season as an infectious sore throat, and at other times as a bronchitis or pneumonia, and, lastly, as a contagious gastritis or gastro-enteritis. Frequently all these forms may co-exist in a single outbreak, and often a single animal exhibits the whole of these manifestations. For the convenience of description of the symptoms of this multiform malady we divide it into five principal forms, as follow:—

1. The *Catarrhal*, attacking chiefly the eyes and nostrils.
2. The *Pharyngeal* or *Tonsillar*, affecting the region of the throat.
3. The *Pulmonary* or *Chest* form.
4. The *Abdominal* or *Gastro-enteric*.
5. The *Cachectic* or *Wasting*.

The *Catarrhal* form of distemper is that which is generally seen in the cat, and is the least fatal of any. The first symptoms noticed are a watery discharge from one and sometimes both eyes, the lids of which may be partially or completely closed, so as to hide the front of the eye, and a frequent licking of the upper lip and nose as if they were parched and burning. After a day or so the inner lining of the eyelids may be very much reddened, swollen, and giving rise to a yellow-white or greenish-white thick discharge, which adheres to the lids and seals them together. There may also be shivering fits, a dull open coat, and a great desire for warmth (this being so intense in some cases that the animal frequently gets under the grate when a fire is in it). There is sneezing, followed by a snuffling kind of breathing; the nostrils discharge a thick, ropy, whitish or greenish matter, which clings to their openings, and very often closes them up. When the pharynx or larynx is the seat of catarrh there are frequent fits of coughing. The appetite is diminished or absent, but thirst is, as a rule, great. There may also be seen at times vomiting, diarrhœa, or constipation. Emaciation is gradual and slight, or rapid and great, varying according to the severity of the symptoms.

The breathing is not much altered in the majority of cases, but in a few instances it becomes frequent. The temperature rises a few degrees, but this is variable, and it is sometimes normal. The body and limbs feel

cold to the touch, and sometimes give off an offensive odour. The tongue, lips, hard and soft palates, and gums (especially around the teeth) are occasionally ulcerated. Now and again the eyes become the seat of ulceration, which on rare occasions becomes perforated; at other times they become affected with a severe inflammation, which extends to the whole eyeball and destroys this organ. There is at times dulness or drowsiness, and the animal seeks dark corners or gets under the furniture. Many cats from sheer nervousness, especially in strange places, avoid the fire and seek obscure or lofty positions. Recovery generally takes place within a fortnight or three weeks, but death may take place within twenty-four to forty-eight hours from the commencement of the attack.

The *Pharyngeal*, *Tonsillar*, or *Throat* form is the most deadly manifestation of distemper. The first *symptom* to attract attention is the drivelling of clear, ropy albuminous saliva from the corners of the mouth. The animal crouches upon all four of its limbs; there is a frequent gulping movement, and a sound is emitted from the throat as if there was an attempt to swallow the thick ropy saliva which clings about the mouth and pharynx; the swallowing seems difficult or impossible; food is refused, but thirst is constant, although the animal seems incapable of swallowing; there is a great dulness or depression, and the cat appears indifferent to its surroundings.

On examination of the outside of the throat it is found swollen and painful, the glands are enlarged, and there appears to be a gurgling noise at each inspiration and expiration. On inspection of the mouth and back of the throat, the tongue and pharynx are found to be covered with a thick, ropy, bubbling saliva, the mucous membrane is swollen and congested, and the soft palate is of a pinkish or even dark reddish arborescent appearance, due to the congested state of the small blood-vessels. Sometimes ulcers appear on the hard and soft palates. After a day or so the depression increases, there is a discharge from the eyes and nostrils, which appears at first as a clear viscid fluid, and afterwards becomes yellowish or dirty green in colour, and, if the animal lives long enough, ultimately bloody, in consequence of it irritating the mucous membranes and surrounding skin of the eyes and nose. There may also be a catarrhal or

purulent foetid discharge from one or both ears, but this is quite exceptional, and is mostly seen in cases having a fatal termination.

If the prostration is very great, and there is rapid loss of weight and condition, and the discharge from the mouth, nostrils, and eyes becomes foetid, coupled with total loss of appetite, and no abatement of the other symptoms, a fatal termination is to be anticipated. Late in the complaint the pharyngeal mucus may become of a dirty colour or sanious; purple spots appear on the tongue, gums, and lips, and there is a moan or cry emitted at each respiratory effort; convulsive movements of the muscles of the temples, shoulders, and thighs set in, and death takes place from intoxication. The temperature rises at first, but when a fatal termination is to be anticipated it falls below the normal.

The *Pulmonary* or *Chest* form, although not so frequently seen in the cat as in the dog, may appear from the outset as a distinct localisation, or follow or intervene during an attack of the other forms as a complication. It may or may not be ushered in by shivering fits; the coat becomes dull and open, there is sneezing or coughing, or both; tears run from the eyes, and mucus issues from the nostrils, and there is a great desire for warmth. The temperature is elevated, and varies from 102.5° to 106° , but rarely running a typical course. The cough, when present, is frequent and rattling or harsh, and sometimes dull. On listening to the chest wheezing, rattling, or blowing, or rubbing, or splashing sounds may be heard. Emaciation is either gradual or rapid, thirst is generally great, but the appetite is diminished or absent.

The breathing is either quickened or the inspiratory and expiratory efforts may be prolonged and accompanied or not with a moan or grunt, which is sometimes associated with fluid in the chest cavity, which is known by the pumping or lifting action of the flanks, this effusion in one or both of the pleural sacs being either of a clear greenish or amber-tinted or bloody or dirty yellowish appearance, and sometimes of a foetid odour. Besides pleurisy, which is only occasionally encountered, there may be pneumonia, bronchopneumonia, or bronchitis, according to the structure of lung involved in this form of distemper. (For a description of these localisations or complications, see under their respective headings.)

The lesions of the lungs may be slight, and yet the symptoms may be severe; on the contrary, the lesions may be extensive, and the resulting symptoms comparatively slight. If the fever remains high, the appetite abolished, the pupils dilated, the breathing plaintive and very rapid, and prostration great, death soon takes place from failure of the heart due to intoxication. In many cases, though, the fever is not intense, and yet death supervenes.

The *Abdominal, Gastric, or Gastro-enteric* form of distemper is oftener seen than either the pharyngeal or pulmonary form, and may occur as a very acute and rapidly fatal manifestation, or as a chronic disease. It frequently accompanies the other forms. In *acute* cases there is sudden vomiting of food, quickly followed by a frequently repeated ejection of thick, slimy, and frothy mucus, and ultimately by a thin, watery, serous fluid, which is of an olive-green or yellowish appearance. The thirst is intense, and no sooner is water sipped than it is expelled. There is frequent diarrhoea; the stools at first seem fluid, then become watery, sometimes bloody, and very fætid. The appetite is suppressed, and the animal becomes cold and indifferent to its surroundings, the facial expression is pinched, the eyes are semi-closed; the coat is dull and open, and on pressure over the region of the stomach pain is evinced by a moan or cry, and death usually takes place in a few hours. There is not as a rule any discharge from the eyes and nostrils.

In the *subacute* cases, beyond a slight catarrhal discharge from the eyes and nostrils, there may be either vomiting or diarrhoea—often both—and at other instances vomiting and constipation. When the bowels are the principal seat of the disease, vomiting is rare, but diarrhoea is generally persistent. Thirst is great, and food is refused or taken sparingly. The animal is dull, cries if moved or if the abdomen is manipulated; emaciation is rapid, and the animal dies in a state of exhaustion.

In the *chronic* cases there may or may not be any catarrhal symptoms, but there is a chronic and persistent diarrhoea, and sometimes vomiting. The appetite is capricious or sometimes ravenous, thirst moderate, and emaciation gradual, and liquid fæces may be expelled on the least effort, as by coughing; the fur or pelage around the tail becomes soiled, and, in consequence, the animal gives off an offensive odour.

In some instances the breath becomes fœtid; the teeth, gums, tongue, and lips are covered with a dirty brown or greenish slimy material; and frequently the gum around the neck of the teeth is spongy, and bleeds on the slightest touch. Occasionally the bone into which the teeth are inserted becomes exposed, ulcerated, or necrosed. Ulcers are at times seen on the lips and tongue.

The *Chronic Cachectic or Wasting* form is sometimes encountered as a chronic wasting malady, not showing many symptoms beyond gradual emaciation, great weakness, intense thirst, ravenous or capricious appetite, and occasionally diarrhoea. At other times the animal goes off its appetite, sits about in a mopish manner, has a staring and dull coat, the mucous membranes are pallid, the jaw protruding over the front of the inner portion of the eyeballs, and becomes light in weight.

It very occasionally happens in these wasting cases that the skin becomes the seat of parasitic mange, and, in consequence, gives off an offensive mousy or mouldy odour. If treatment is not skilfully and early adopted, death takes place, and on *post-mortem* examination the remains simulate those of an animal having died from starvation. It may follow on the other forms of manifestation.

Skin eruptions are rarely noticed in distemper of the cat, but sometimes one sees on kittens a scabby eruption resembling ecthyma, the discharge of which mats the hairs in these young creatures. *Female cats*, when pregnant, frequently *abort*—in fact, nearly every cat in this condition in a cattery affected with distemper will miscarry, making it appear as if it were a special contagious disease.

The *ears* occasionally become the seat of acute catarrh or ulceration, and give rise to an offensive discharge. This complication is mostly associated with the pharyngeal form.

The *cornea* of the eye is sometimes the seat of ulceration, which generally disappears as the animal recovers. The whole eyeball occasionally partakes of inflammation, which destroys it.

When the *eyes of young kittens* become the seat of catarrh, the eye is generally destroyed, and consequently the sight is lost. The *nervous* type, showing itself as excitement, convulsions, chorea, meningitis, or paralysis, although seen, is somewhat rare in this creature.

Death may occur either suddenly from

convulsions, or rapidly from intoxication, or slowly from exhaustion.

When due to intoxication, clonic, convulsive, or twitching movements of the muscles of the temples, shoulders, and hind limbs precede, and are even seen shortly after, death. Frequently death takes place without any symptoms of the disease having been noticed. In this case it appears to be due to the rapidity of the formation of the toxin or poison of the microbe, which causes intense shock to the system.

Diagnosis.—In many instances this disease is mistaken for a simple catarrh, diarrhœa, or sore throat—a mistake unfortunate where other cats are concerned. It is true that the first stage of distemper frequently resembles either of these simple complaints, which are not contagious, and generally only affect one out of several animals kept together, and run their course in a few days; whereas in distemper the disease usually runs a prolonged course, is very prostrating, and in many instances fatal, and, beyond all, contagious. On the other hand, it may resemble diphtheria, which is contagious, but has false membranes on the soft palate, pharynx, larynx, and tonsils, which are absent in distemper.

Prognosis.—Distemper is a most treacherous disease, and one of which even an expert cannot foretell the result. Many instances occur in which an animal appears to be on the right road towards recovery, when a relapse suddenly sets in and carries off the poor creature. If the appetite is moderate, the emaciation not rapid or great, the diarrhœa not intense or too frequent, and no complications set in after the end of the first week, recovery may be anticipated. On the other hand, if the weakness be progressive and prolonged, emaciation rapid and great, an offensive odour is given off from the body, eyes sunken in their orbits, pupils dilated, and the facial expression is haggard, death is to be expected. Again, relapses (which are commonly encountered), early youth, obesity, complications, the breed of the animal (such as Siamese and long-haired varieties, especially light-coloured animals), are generally unfavourable towards a certain recovery.

Chronic nasal catarrh, chronic pneumonia or phthisis, and persistent diarrhœa may also give trouble after the distemper has run its ordinary course, and will have to be reckoned with.

Treatment.—An old maxim is, "Prevention is better than cure," and ought to be carried out as far as possible by isolating all those animals that have been in contact with the infection.

Animals coming from homes for lost and stray cats, cat shows, dealers in cats, should be kept apart from those in the cattery for at least a fortnight, to see if they develop the complaint. The place of isolation should have no communication with the building or house in which the majority of healthy cats are kept. The baskets, cages, clothing, etc., should be thoroughly washed and disinfected before they are used again for sound cats. It ought not to be forgotten that persons who have been in contact with sick animals may carry the infection on their hands or clothes.

When distemper has declared itself in a cattery and the inmates have recovered, the place should be *thoroughly* scrubbed, disinfected, and afterwards lime-washed or repainted. Boiling water and soda, used with the aid of a scrubbing-brush, is much more reliable to remove infection than many of the so-called disinfectants, which frequently do not destroy the virus, but often injure the cats. After the habitation has been *scrupulously cleansed*, it may be well to disinfect it with chlorinated lime (1 lb. to the gallon of cold water), which should be brushed all over the floor, walls, partitions, etc. Baskets, hampers, etc., should be served likewise. Metal and earthenware utensils may be boiled in strong soda-water.

Before any cats are again put into the place, the doors and windows should be opened for at least a week, and fresh air and daylight admitted, as they are the best destructors of micro-organisms.

Where valuable cats are kept and the risk of distemper is great, it would be advisable for the owner to have the cats *immunised*, or *rendered proof* against the disease, by means of the Pasteurian system of vaccination with the attenuated microbe of distemper, as introduced into practice by Professor Lignières and Dr. Phisalix. Several degrees of strength of the vaccine are used. The animal is at first vaccinated or inoculated with a mild degree of virus, and afterwards with vaccine of gradually increased virulence, so that the most virulent virus (which would quickly kill, or cause the disease in a severe form in an animal not previously inoculated with the

milder vaccines) would not produce any disturbance in the vaccinated creature.

Medical or Curative Treatment.—The sick animal should be kept in a well-lighted and well-ventilated but not draughty room, which ought to be dry, and kept at a temperature of about 60°. The floor should be covered with a thick layer of fresh pine sawdust, heaps of which should be placed in tins, boxes, or old coal-scuttles for the convenience of the animals.

If the cat is seen in the first stage of the disease, an emetic of $\frac{1}{4}$ to $\frac{1}{2}$ grain of tartar emetic in a teaspoonful of warm water may be given to clear out the stomach and bronchial tubes. In place of this drug, $\frac{3}{10}$ to $\frac{1}{10}$ grain of hydrochloride of apomorphine in tabloid form may be injected under the skin. After the emetic has passed off, easily digested and nourishing food, such as milk, should be offered, and, if refused, forced upon the animal. When the appetite is fairly good, $\frac{1}{2}$ to $\frac{1}{4}$ grain of calomel may be given twice a day, but must be stopped as soon as it causes vomiting or intense diarrhoea.

When the appetite is bad, quinine sulphate ($\frac{1}{2}$ grain) given three times a day for a lengthened period may be useful in remedying it.

The *eyes* and *nostrils* should be bathed three times a day with the following lotion :

Chinosol	3½ grains,
Rose-water	8 ounces;

and then smeared with an ointment composed of—

Boracic Acid	½ drachm,
Cold Cream	4 drachms.

When the *throat* is very much inflamed, it should be painted on the outside, after all the hair is clipped off from ear to ear, with tincture of iodine or the ætherial tincture of capsicum, three times a day, until soreness is produced. As it is a difficult job to paint the inside of the cat's throat, the following powder dropped on the tongue will act in a similar manner :—

Quinine sulphate	½ grain.
Borax	2½ grains.

To be given morning, noon, and night.

If there is either *pleurisy* or *pneumonia*, or both combined, the hair should be cut off over the ribs, and the skin painted with a solution of tartar emetic (composed of 1 drachm of the drug to an ounce of spirit), and then wrapped up with a binder, under which a layer of cotton-wool is placed.

In case there is *repeated vomiting*, a powder composed of—

Bismuth carbonate	5 grains,
Cocaine hydrochloride	½ grain,

should be shaken on the tongue every four hours until twenty-four hours have elapsed since the last vomiting took place. If there should be a persistent and *profuse diarrhoea*, it must be moderated, but not suppressed, by means of 2½ grains of tannigen given morning, noon, and night. When there are any *convulsions* or much *pain*, $\frac{1}{8}$ to $\frac{1}{4}$ grain of extract of opium in pill should be administered morning and night.

Light and easily digested food—such as peptonised milk, Mosquera's beef jelly, Benger's peptonised food, etc.—should be given in small and repeated quantities during the earlier or active stages of the disease. Later on, in the convalescent stage, scraped raw beef, boiled fish, rice pudding, etc., may be offered.

Parrish's chemical food and cod-liver oil, given by some cat-owners during the acute stage of distemper when there is no appetite, are harmful and cruel remedies.

DISEASES OF THE EAR.

The external ear in the cat is short, upright, triangular, pointed, and opens in front. Its apex in some cats—especially Persians—has a tuft of hair growing from the inside. In the outer margin the ear doubles on itself, forming a pouch, in which lumps of dirt, ear-mites, etc., frequently accumulate.

A *Serous Cyst*, or abscess, forms between the skin and cartilage of the inside, and sometimes also of the outside, of the ear or ears.

The ear is swollen, feels tense, has a bluish or reddish tint, but is not very painful. The contents of this swelling are a thin, reddish fluid and a blood clot, which separate the skin from the cartilage and its covering.

It is always associated with ear-mites, and generally results in the ear shrinking and becoming drawn down, which, when both ears are affected, give the animal a peculiar appearance, resembling some wild variety of the cat tribe that usually carries these organs in a semi-pendulous manner.

Treatment.—It can be prevented by keeping the cat's ears clean and free from ear-mites. When it is present, the cyst should be freely opened (which can be done painlessly by previously injecting a few drops of a 4 per cent. solution of cocaine), the blood clot carefully

removed, and the inner surface of the cavity washed out with a 5 per cent. solution of chinosol. The ear must be gently pulled every day to prevent shrinking, and, consequently, deformity.

True Canker is an inflammation of the deeper part of the cavity of the ear, accompanied with a chronic fœtid, whitish, cheesy, or gluey discharge, and sometimes ulceration, and, rarely, warty-looking growths. It usually runs a long course, unless skilfully treated, and is liable to recur.

Treatment.—The ear should be carefully washed out with tincture of calendula, and then well dried with cotton-wool, and afterwards have finely sifted boracic powder blown down the cavity. This treatment should be carried out at least every other day until recovery takes place.

Quite 90 per cent. of long-haired varieties and cross-breeds suffer from **Parasitic Canker**. It is seen in kittens a month old, as well as in aged cats, and is conveyable to the dog. The ferret also is liable to it.

It is due to the ear-mite called *Symbiotes auricularum*, which was first found in the ear of the dog by Professor Hering, of Stuttgart, in 1834, and in the cat by Huber, of Memingen, in 1860.

It resembles the mange and cheese mites in general characters, and is only with difficulty seen with the naked eye. When viewed in strong sunlight, it appears as a small whitish or cinnamon-coloured woolly speck, resembling a grain of meal or flour crawling about on the brownish dirt in the ears. These mites nearly always collect together in large colonies.

There is frequent scratching of the ears with the hind limb. The cat suddenly stops, sits down, inclines its head to one side, and scratches away as if it gave it great pleasure to do so. In some cases, however, it becomes quite frantic, and swears. Frequently there is an abrasion of the skin behind the ears due to this scratching, and occasionally the flap of the ear becomes the seat of a serous abscess, which I have described.

When the mite wanders over the drum of the ear, especially in warm weather, some cats are seized with convulsions, others become delirious, and many reel about as if intoxicated.

Treatment.—The ears should be washed out with warm soap and water, and then well dried with cotton-wool, and afterwards have a lini-

ment composed of oil of stavesacre (2 drachms) and almond oil (6 drachms), mixed together, and poured in every day until all signs of irritation have passed away, care being taken to wipe off the superfluous dressing from the ears after each dressing.

DISEASES OF THE EYE.

In certain respects the eye of the cat differs from that of the other domesticated animals. It resembles the eye of the dog in its shape, which is somewhat rounded and globular. The *membrana nictitans*, *haw*, or *third eyelid*, is not so well developed as in some other animals, as the cat is able to protect the eye with the paw to a considerable extent. The *tapetum lucidum* is of a brilliant metallic golden yellow or greenish (in Siamese and albino cats pinkish colour), and is so well developed that it probably enables the animal to see better at night, by reflecting the rays of light a second time through the retina.

It is also the cause of the well-known glare of the cat's eyes in the dark.

The *iris*, or *curtain*, is yellowish-green, orange, or golden in most cats; sometimes it is amber-coloured, and in other cases golden, with a tinge of metallic green around the pupillary circumference. Some cats, especially white cats, have the iris of one of the eyes of a bluish white appearance, and the other a golden, amber, or greenish golden colour.

The Siamese cat and many white cats have pale blue or bluish eyes. The shade of the iris generally varies with the colour of the cat's fur, and is taken into consideration in the judging of points at shows.

The *pupil*, or opening in the centre of the iris, when widely dilated, is circular in shape, but when contracted it becomes vertically elliptical, and may become so narrow as to appear as a mere thin perpendicular slit.

The *optic disc*, or entrance of the optic nerve before it expands in the cavity of the eyeball to form the retina, is small, round, and cupped, and of a clear grey colour, and the veins in it can be distinguished from the arteries which radiate from the optic disc. The choroidal vessels are rarely seen, but in the Siamese cat they are seen in the red peripheral zone.

Kittens, like puppies, are, as a rule, born with the eyelids closed, and this condition lasts usually from nine to twelve days, when the membrane joining the two lids together wastes and finally gives way. Sometimes, however,

the eyelids do not become separated, or only become so at one part, so that surgical intervention may be necessary to separate the partially or completely closed lids.

I have, on several occasions, seen kittens born with their eyes open, but have not been able to satisfy myself if the condition was due to any prolongation of the period of uterogestation.

The eyelids are sometimes the seat of **ring-worm**, **mange**, **follicular scabies**, or **eczema**, and as these affections are usually present in other parts of the body, they can easily be diagnosed by means of the naked eye or the microscope. The best remedy for any of these diseases, when situated on the eyelids, is :—

Yellow oxide of mercury	. 4 grains.
White vaseline	. 1 ounce.

These ingredients are to be well mixed by a competent chemist, and a small piece, about the size of a pea, is to be well rubbed on the affected part or parts every morning. Care must be taken that no superfluous ointment is left on the hairs, as most cats will rub it off with their paws, which they will immediately lick, and so may become poisoned.

The eyelids occasionally become turned inwards, so that the hairs covering it rub on the glassy portion of the eyeball, and frequently set up irritation, inflammation, and opacity, and a copious discharge of tears. This is termed **entropium**, and requires an operation. When the eyelid is turned outwards from the eyeball, the condition takes the name of **ectropium**, which rarely calls for any interference, as it does not injure the animal, even if it is unsightly. A very rare anomaly of the eyelid in the cat is when the hairs of it take an unusual direction, and rub on the glassy portion of the eyeball, and, like entropium, set up irritation, inflammation, and smokiness of it. This is termed **trichiasis**, and requires an operation to remedy it.

The eyelids are also subject to **wounds**, **bruises**, **abscesses**, **warts**, and **Meibomian cysts**, which do not call for special attention. The **third eyelid**, **haw**, or **membrana nictitans**—though, as before stated, it is not so well developed in the cat as in some other animals—is liable, in debilitating diseases, such as distemper, anæmia, etc., to protrude persistently over the inner part of the front of the eyeball. It will, however, resume its normal position as the cat regains strength, and should, there-

fore, on *no account* be removed. It frequently becomes inflamed during distemper, catarrh, or ophthalmia, or from injuries, but should not in these cases be removed, as if it were a foreign body or new growth; a simple soothing, antiseptic lotion will put it right as the original disease abates and strength is regained.

Frequently in the cat, as in the dog, just below the inner angle of the eye socket an **abscess** forms. This is due to pus in the cavity of the jaw bones, called also the antrum of highmore, above the teeth, and is generally caused by some disturbance or disease of the tooth. When the tooth immediately below the abscess is removed, and the abscess cavity is washed out with some astringent, recovery usually takes place. It should, however, be borne in mind that the teeth below the eye are frequently diseased, and no abscess is caused by them.

A **fistula** may form immediately below the inner angle of the eyelids. It results from an abscess which opens, and then heals up, to break out again. This process goes on until a permanent opening or fistula remains, from which a discharge of matter issues. This is connected with some disturbance, or even disease, of the tooth or teeth immediately below it. When the tooth or teeth are removed, and the opening occasionally well washed out with some astringent, it heals up, and no further trouble is seen. However, it is sometimes due to tuberculosis, and the mere removal of teeth does not do away with the fistula. It is mostly mistaken for a lachrymal fistula.

Sometimes the conjunctiva, or the pinkish membrane lining the inner surface of the eyelids and the front of the eyeball, becomes the seat of disease.

A non-inflammatory swelling of it is seen, due to an infiltration of serum. This is called **chemosis**. It has the appearance of a palish pink swelling all round the eye, which seems sunken in the orbit but does not seem inflamed or painful. It may quickly disappear on dropping a few minims of a 4 per cent. solution of cocaine hydrochloride into the eye. It is liable to recur at some future time.

Conjunctivitis, or inflammation of the membrane covering the inner lining of the eyes and the front of the eyeball, is also termed external or simple ophthalmia. It is frequently seen in the cat during distemper, diphtheria, catarrh,

or from an injury to, or presence of a foreign body in, the eye.

The animal evidently dreads the light, as the eyelids are partially closed, and the haw is drawn a little way over the front of the eyeball. Tears run down the face, and, if the eyelids are separated, and the internal lining thus exposed, it will be found that it is swollen and reddened from the distension of the small blood-vessels. After a day or two, the discharge alters in character, and instead of being watery, as before, appears as yellowish white thick matter, flowing from or sticking to the inner corner of the eye. The lining membrane may become so swollen that it laps over the lids, and the eyeball seems to have sunk into its orbit.

Sometimes it is associated with the presence on the conjunctiva of small, round, pinkish bodies, the size of a pin's head, which completely disappear as the affection passes off, leaving the mucous membrane as they found it. Frequently, there are reddish-yellow granulations or greyish-white, semi-transparent, or glistening bodies, of the size of a rape-seed or less, scattered over the conjunctival membrane, or protruding from it.

To these two latter varieties of conjunctivitis the terms of *follicular* and *granular* are respectively applied. They both seem contagious.

Treatment.—If the catarrh of the eyes is due to a foreign body, it must be removed. The cat should be kept in a dark, warm place, free from draughts and away from the fire, and the eye bathed with a warm lotion composed of the following ingredients:—

Boric acid	8 grains.
Cocaine hydrochloride	8 "
Rose-water	1 ounce.

If there are any granules on the conjunctiva, the lining membrane of the lids should be everted, after the eye has been cocainised, and painted with a 10 per cent. solution of nitrate of silver or rubbed with a stick of copper sulphate, care being taken that the superfluous material is afterwards washed off with warm water.

The **Purulent Ophthalmia of the New-born** is seen in young kittens as soon as their eyes are opened, or even before, and is a very serious complaint, as it generally attacks the eyeball, which it destroys, and consequently the sight is lost. This disease seems contagious.

There is a bulging of the eyelids, which are glued together. When these are separated, a

thick, yellowish matter flows out, the eyes are ulcerated and perforated, the inner surfaces of the eyelids are inflamed, and soon after the contents of the eye protrude as a fleshy mass.

Treatment.—If the eyes are destroyed, the animal should be put into the lethal chamber at once. On the other hand, if there is no ulceration of the eyeball, the eyelids should be separated and the eyes and under-surface of the eyelids constantly irrigated for a quarter of an hour at a time with a warm solution of chinisol. The eyelids must not be allowed to become sealed up, else matter will collect and press on the delicate eyeballs and destroy them. It may be advisable to paint the inside of the eyelids with a 10 per cent. solution of nitrate of silver.

The *cornea*, or clear, glassy transparent membrane of the front of the eyeball, is frequently involved in the disease just described, or it may become inflamed or ulcerated independent of it.

Inflammation of the cornea, termed **Corneitis**, *keratitis*, or *external ophthalmia*, may result from conjunctivitis, injuries, distemper, diphtheria, or disease of the brain or nerves, sun-stroke, etc.

It is very prevalent during the cold winds of spring, and in the majority of instances seems to be contagious. It appears in the form of patchy congestion or inflammation, or at a later stage as ulceration.

One or both eyes may be affected. There is a dread of light, a continual flow of tears, and frequent winking of the eyelids, or almost complete closure of them. The cornea, usually glassy and transparent, becomes clouded by a smoky or milky white film, which has a rounded or irregular form.

Blood-vessels, which in the normal state are absent, appear on the cornea, spreading from a part or all round the circumference towards the centre of the eye. If the inflammation is intense and prolonged, the eyeball perforated, and the contents bulge outwards and become rough, dirty, and leathery in appearance, this condition is generally seen either as the result of an injury, or from improper treatment, or neglect of a simple affection of the eye. In distemper the inflammation usually expends itself on some particular spot or spots in one or both eyes. These spots may appear as mere milky-white patches, or they may present an appearance which might lead an ordinary observer to the conclusion that a small piece

had been dug out of the eye. They may occur either in the centre of the cornea, or a little above it, or sometimes a little towards the outer angle of the eye.

At the outset the cornea at the particular spot or spots in which the inflammation is localised becomes softened, then bulges, and finally gives way, so that a depression or ulcer is left on the eye. Some time after this ulcer becomes filled up with granulations of a dirty red colour, which afterwards become absorbed, when the cure is complete. Frequently two ulcers appear side by side.

Sometimes, when these ulcerations are improperly treated or neglected, or associated with great debility or anæmia, the white speck remains as a permanent blemish, or in the more serious cases the ulcer perforates the eye, and the contents of which bulge and cause what is termed a *staphyloma*, from its resemblance to a grape, or the whole eye may become involved in the inflammation and be totally destroyed. In these cases of the destroyed or "lost" eyes, the whole eyeball has a greenish-white appearance, and seems to bulge out from the socket in consequence of the general swelling of the organ. It may give way or become ulcerated, giving rise to a continual discharge, and if not removed causes great pain and exhaustion.

Treatment.—The cat should be kept in the dark, and soothing antiseptics applied to the eye.

The solution recommended for conjunctivitis is also very serviceable here. If the eye affection is due to distemper or any other general disease, it is, of course, necessary to treat this disease, in addition to the local applications to the eye. When ulceration takes place, the following drops are recommended:—

Eserine salicylate	½ grain.
Distilled water	2 drachms.

To be instilled between the eyelids, by means of an eye-dropper, two or three times a day. If, however, there is much vascularity, the following drops are advisable:—

Atrophine sulphate	½ grain.
Cocaine hydrochloride	6 grains.
Distilled water	2 drachms.

After all the acute symptoms have passed away, the indolent granulations may require treatment. A suitable application for this purpose is:—

Chinosol	3½ grains.
Rose-water	8 ounces.

To bathe the eye, by means of allowing the lotion to drop by squeezing a piece of lint saturated with it between the eyelids several times a day.

When the eye is irretrievably lost, and supuration commences in the interior of the eye, it is necessary to remove the whole eyeball. However, this should not be performed in the case of distemper until after the original disease abates, else removal of one eye will probably end in destruction of the other.

General Remarks on the Eye.—In all affections of the eyes, a careful examination of them should be made by an experienced qualified veterinary surgeon. As, however, in some out-of-the-way places professional aid is difficult, if not impossible, to obtain, a few brief hints as to general treatment should be useful. Many amateurs, in their anxiety to effect a speedy and complete cure, attempt too much, use powerful and irritating drugs (often also in improper proportions), and frequently, with the best intentions in the world, succeed in permanently injuring or even destroying the sight. It is therefore better, in the absence of professional aid, and especially in the earlier stages of inflammation of the eyes, to trust to mild and palliative treatment, and to "give nature a chance."

In all cases of recent inflammation, soothing applications should be used, such as warm infusion of poppy-heads or camomile flowers, warm milk, cocaine drops, etc. If the inflammation is associated with increased tension of the eyeball, due to an excessive quantity of fluid within it, or is accompanied by deep ulceration, the increased tension should be reduced by means of the eserine drops.

Lotions containing either *lead* or *silver nitrate* should not be used in inflammation of the cornea associated with ulceration, as the former is apt to leave a white spot or patch, and the latter a brown or blackish stain.

Last, but by no means least, animals affected with disturbance of the eyes should be kept in the dark, or at any rate away from the fire or from any glaring light, and should be shielded from draughts. The general health should also be looked to, and nourishing food given.

DISEASES OF THE SKIN.

The cat is very fortunately free from many of the skin complaints that affect the dog. Nevertheless, domestication and improper surroundings—the curses of health—demand a few

victims now and again, and hence the much-maligned cat is not exempt from this bane.

The diseases are either *contagious* and conveyable from one cat to another, or *simple* and not spread by contact.

The contagious skin diseases are due either to an animal parasite (as in mange) or to a vegetable parasite (as in ringworm).

Sarcoptic Mange is a contagious skin disease of the cat due to an animal parasite or mange-mite, termed *Sarcoptes minor*, var. *cati*.

It generally attacks ill-fed, neglected, and badly housed cats which are allowed to stray, and is seen chiefly in the autumn. It frequently occurs as an epizootic, and where no attention is bestowed on the victims it is very fatal.

The adult or mature mite has an almost circular body. When viewed under the microscope, its limbs seem to be under its body. It has eight pairs of legs in the adult and six in the larval stage. In the female the hind legs are provided at the extremities with bristles only; but in the male the central pair of hind legs are provided with suckers, although the outer pair have bristles. It does not excavate a subcutaneous gallery, or burrow, like the mange-mites of other animals, but makes a simple nest, that appears as a minute eminence. The larvæ, nymphæ, and males wander in the midst of the crusts.

It is capable of being transmitted to man, and to the dog, rat, horse, and ox.

Whatever part of the body it first touches, it always goes to the head to do its injurious work. At first small reddish pimples, no larger than a pin's head or a turnip-seed, appear; these exude a yellowish fluid which dries and forms crusts. The animal scratches, the hair falls off, numerous other scales appear, and become thicker and thicker, until the whole head and ears become encased in a cast of dirty yellowish crusts. The crusts may be absent in young kittens or cats, but slightly adherent scales are seen instead.

After a time the disease spreads to the neck and shoulders, elbows and thighs, or even to the whole body. In kittens or young cats the complaint is more likely to spread to various parts of the body, but in older animals it is generally confined to the head, or head and neck, but may, as in young cats, spread to the other parts or to the whole body, the skin of which, after some time, becomes wrinkled, and gives off a musty odour.

The nostrils and eyes may be blocked up by the thickened crusts, so that the animal can see, or breathe through the nostrils, only with difficulty. The cat hides or strays away, it mopes and seems sad; it becomes emaciated, and indifferent to its surroundings, and finally succumbs to exhaustion or some concurrent disease. It may be associated with ringworm or parasitic ear canker; it is nearly always accompanied by the elliptical tapeworm.

It quickly kills within five or six weeks if no treatment or attention is bestowed on the cat, especially if young; but where it is partially treated, it may linger for months, even years. Cold weather retards its progress, but its energy is renewed in the following spring. It spreads slowly on well-cared-for cats.

Treatment.—The mangy cat should be kept isolated from the healthy animals, and kept away from children. Its basket, bedding, or cage should be boiled, burnt, or thoroughly disinfected. The cat must be carefully dressed with sulphurated lime lotion, which should be applied by means of a piece of lint every day, taking care that the animal is kept warm and well fed.

Follicular Mange is due to a caterpillar-shaped mite—the *Demodex* or *Acarus folliculorum*, var. *cati*—which inhabits the sebaceous follicles of the skin. It is sometimes found in the ears, nose, and head of the cat, but rarely causes severe itchiness. It produces pimples and scabs, which are only of short duration, and seldom occasions trouble. It is frequently associated with sarcoptic mange. The parasite is a quarter smaller than that of the dog.

Treatment.—A lotion composed of sulphurated potash (1 drachm), glycerine ($\frac{1}{2}$ oz. to 6 parts of rose-water), applied by means of lint to the affected part once a day, generally suffices to cause its disappearance.

Grey Ringworm, or *Tinea tonsurans*, is not a common affection of the cat. It is due to a vegetable parasite or mould, termed the *Trichophyton felinum*, which attacks the hairs, these becoming much altered and broken, and their ends split up and frayed like a brush. There will be noticed circular or oval bald patches, covered with an abundance of scales, which are of a slaty or greyish appearance, and vary according to the colour of the animal. These are seen on the head and limbs and round the eyelids and mouth, but also on other parts of the body. They may run into one another,

and form large patches. There may be itching and scratching; and in this latter case the crusts may be covered with blood and resemble eczema.

Treatment.—As this disease is conveyable to other cats, to the horse, ox, dog, and children, the affected animal should be isolated and the patches dressed with tincture of perchloride of iron once every third day. (Whole families, and even a whole school, have been known to become affected with ringworm from a cat.)

Yellow Ringworm, or *Tinea favosa*, or *favus*, also termed “honeycomb ringworm,” is a commoner disease in the cat than grey ringworm. It is due to a vegetable parasite named *Achorion Quinckeanum*, which causes at first yellow-coloured crusts that are arranged as cup-shaped masses, which disturb the hairs so that they are shed. These cup-shaped masses resemble a honeycomb in appearance, hence its name. The sulphur-yellow colour after a time changes to a dirty yellow or grey. The patches may be circular or zigzag, and raised above the skin, but the centre is depressed so as to give them a cup-shaped appearance. They vary in size from a pin’s head to a shilling, or larger. They may run into one another, so that the circular form is no longer present. The hairs are stiff and lustreless, and can be easily pulled out. They seem to grow in the centre of the “cups.” After a time the parasite loosens the hair in the follicle, so that it is shed.

It prefers to affect the root of the claws, or the belly, sides of the chest, elbows, head, base of ears, nose, and then spreads all over the body. When it attacks the head, it ensheaths the face and scalp as if clay had been moulded to the parts, so that the eyes become hidden from view.

The cat hides itself, or strays away; it moans or mews, crouches on all fours, and seems utterly miserable. The skin gives off an abominable odour, which resembles mouldy decaying wood in a damp, dark building, or a mousy smell. When the disease is in an advanced stage, the animal dies from exhaustion or some concurrent disease.

It affects old cats as well as young ones, and it is said they contract it from mice and rats, which become affected behind the ears. A week or a fortnight elapses before any symptom appears after infection. Young animals are easily infected, but older ones may resist it. It is transmissible to *children and adults*, from

cat to cat, from man to cat, and from rats and mice to man and cat. It may be associated with mange and parasitic ear canker.

Treatment.—The cat affected with yellow ringworm should be kept away from children and other cats: the affected patches may be painted with the following:—

Salicylic acid	1	drachm.
Ether	2	drachms.
Spirit of wine	$\frac{1}{2}$	ounce.
Glycerine	4	drachms.
Camphor-water	to 3	ounces.

The term **Eczema** is given to all those skin eruptions that are characterised by pimples and vesicles followed by scabs and scales, and accompanied with great itchingness.

It is said to be non-contagious, and as far as the cat is concerned this seems to me to be true. On the other hand, in the dog some of the varieties of eczema appear to be spread by contact. It very often runs a chronic course, and frequently recurs.

It generally affects the back, loins, root of tail, and back of the thighs, although any part of the body may be attacked. There is great itchingness, the animal bites or licks itself, the skin becomes red, pimples the size of a head of a millet seed, or even a small pea, appear; these, after a time, burst, and a fluid issues from them and dries, forming scabs. Sometimes the itchingness is so intense as to cause the animal to bite or lick itself until the skin becomes raw and bleeding. In rare instances it produces a kind of mania for licking, which is followed by epileptiform seizures. The hair falls off, leaving bare patches, or it becomes matted together by the gluey discharge and ultimately sheds itself.

In *suckling cats*, after sudden deprivation of their offspring, an eczematous eruption may appear on the belly, back, and loins, but it is not, as a rule, severe.

The *she-cat*, especially of the light-coloured variety, when not allowed to breed, is often troubled with a scattered vesicular eruption, which is too difficult to eradicate, and is very liable to recur.

In the *castrated* male cat it is very common to find a papular and vesicular eruption, which breaks out every spring and autumn.

The causes of eczema in the cat are an unnatural, sedentary life and an abundance of rich food without any compensatory or sufficient exercise in the fresh air. Hot weather, especially when accompanied by wet, pre-

disposes to it, but the affection is seen also in the cold months of the year.

Treatment.—The animal suffering from eczema should be allowed as much exercise of its functions in the open air as possible. Grass or freshly boiled green vegetables, or asparagus, should be put within its reach. Raw meat, uncooked fish with the bones in, or birds with the feathers on, or bullock's liver are suitable as ordinary food. Rice-pudding, oatmeal, and milk should not be given.

The treatment of the skin is chiefly local. The itchiness must be allayed. This can be obtained by applying precipitated sulphur (2 drachms), zinc oxide (2 drachms), mixed in olive oil (2 ounces) twice a day to the affected parts. If the eruptions are spread over a wide area, the hair should be cut off close to the skin before applying the dressing. For internal treatment a powder composed of calomel ($\frac{1}{8}$ to $\frac{1}{4}$ grain) and bicarbonate of sodium ($2\frac{1}{2}$ to 5 grains) should be given twice a day. If the disease runs a chronic course, arsenic bromide or iodide ($\frac{1}{100}$ grain in a pilule) should be given three times a day.

EXTERNAL ANIMAL PARASITES.

The **Cat Flea** (*Pulex serraticeps*, var. *cati*).—The cat flea is identical with, but rather smaller than, that of the dog. It differs from the flea of mankind (*Pulex irritans*) by having black, blunt spines, seven to nine in number, arranged as the teeth of a comb, at the posterior border of the prothorax and at the inferior border of the head. It is a troublesome pest by irritating and disturbing rest. It prefers to attack the cat when she is suckling.

The flea plays an important part in the evolution of the elliptical tapeworm (*Tænia elliptica*) by harbouring the intermediary cysticercus, the ingestion of which gives rise to the development of this tapeworm in the intestine.

Treatment.—The cat should have powdered pyrethrum well rubbed into its skin, and then combed out, care to be taken that the combings

are burnt. The crevices or corners of the cat's house should be sprinkled with oil of turpentine, or Sanitas powder.

Fortunately for the cat, it is affected with only one variety of louse, the **Cat Louse** (*Trichodectes subrostratus*), which differs from the flea in being wingless and not jumping from but only quitting the cat by accident. It has three-articled antennæ; the head has five sides to it; the body is oval, and in the female notched behind. Its colour is yellowish-brown.

It is not a blood-sucker, but attacks the hair and eats the epidermis, preferably that of the head, neck, back, and limbs, where it causes intense itching. It develops rapidly upon poorly fed, weak, or debilitated animals. There is, besides itchiness, loss of hair, scurfiness, and nits (eggs) in more or less large numbers, which by their presence indicate that the skin has not received sufficient attention. The nits, or eggs, are attached to the hair.

Treatment.—The hair may be sprayed with equal parts of vinegar and concentrated infusion of quassia. Moreover, should the animal lick itself after this dressing is applied, it will act as a tonic. Raw meat, or fish, cod-liver oil, etc., should be given.

PAINLESS DESTRUCTION OF CATS.

A knowledge of how painlessly to destroy a cat's life is very important to the owner of a cat who is not in reach of a veterinary surgeon—the proper person to undertake this duty under ordinary circumstances.

The most humane method is to place the animal in a small air-tight box, into which has been placed previously two to four drachms of *chloroform* on a sponge or piece of lint or cotton-wool, which produces at first anæsthesia or painless sleep, and afterwards death from failure of the respiration and heart. It does not cause a suffocative feeling or sensation like coal-gas, or spasm, as does prussic acid. Care must be taken not to take the cat out of the box too soon, or else life, not quite extinct, may return.