GAPES IN POULTRY

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GAPES is a common and dangerous disease affecting poultry.

Cause.—The disease is caused by a Y-shaped worm which is known as *Syngamus trachea,* the Forked worm, the Red worm or the Gape worm.

The gape worm is reddish in colour. The male is about 1/5th of an inch long while the female measures about ½ an inch. The male worm is permanently attached to the female at the upper third of the head end and it is this attachment that gives the worm the appearance of a Y. The female worm has a circular mouth with many teeth, by which it attaches itself to the mucous membrane lining the inner side of the wind pipe of the bird.

Life History of the Parasite.—The eggs laid by the mature female worm are coughed up into the mouth from the wind pipe and generally swallowed by the host. These eggs later pass out with the droppings. A few of the eggs may be expelled through the mouth in the act of coughing.

In the presence of warmth and moisture, embryos develop in the eggs in about a week to ten days : and within another fortnight or so emerge as larvae.

When the larvae or the eggs containing the developed embryos are swallowed by a susceptible bird, the parasites penetrate the wall of the intestines and are carried away by the blood stream to the minute blood vessels in the lungs. From here, they migrate by way of the small air tubes to the main air tube. When they have once reached the wind pipe, they cling to the mucous membrane lining it. It takes about a month to complete a cycle.

Earthworms may act as intermediary hosts and the larval worms can remain alive for long periods inside the earthworm. If the earthworm is eaten by a fowl the development proceeds in the fowl.

How Birds become Infected.—Infection generally takes place by a susceptible bird picking up the larvae or the eggs with the enclosed embryos from the ground with the food or in the drinking water. The feeding habits of poultry favour the spread of the disease.

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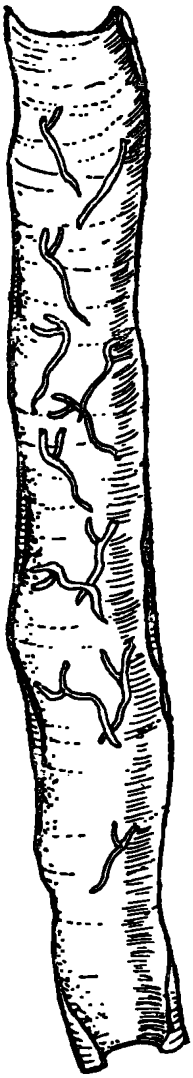

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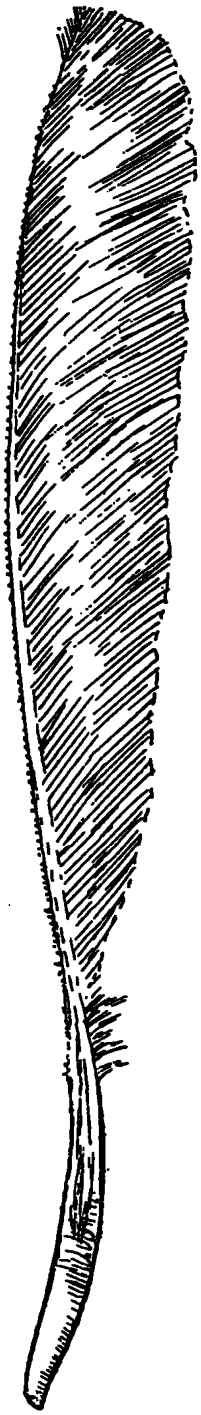

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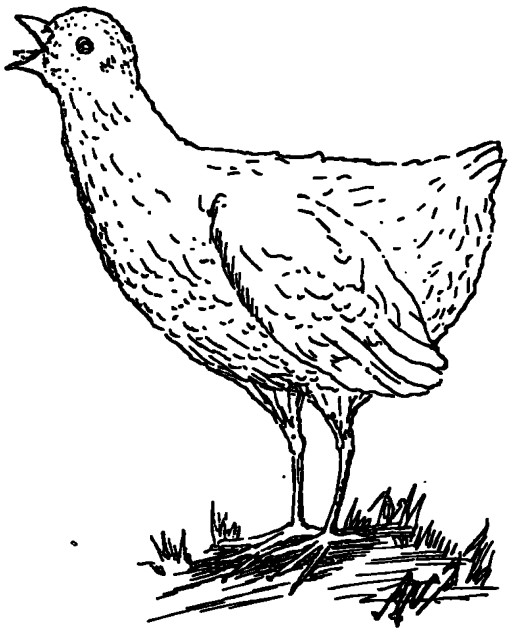

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BLOCK BY SURVEY DEPT. CEYLON.

1. Pair of gape worms magnified three times.
2. Gape worms *in situ* in the trachea.
3. Feather stripped of barbs on one side for removal of gape worms.
4. Characteristic " gaping " attitude of infected chick.

Symptoms.—The symptoms of gapes do not appear before the chicks are about two to three weeks old. The most serious symptoms are produced in young chicks. The parasites suck blood, but the loss of blood is not the most serious injury. Owing to the irritation caused by the bites of these parasites, a large quantity of mucus accumulates in the wind pipe. This interferes with the breathing, and the birds sneeze, shake their heads and stretch their necks and gape with the beaks wide open in order to take in more air. Most of these symptoms are almost entirely due to the mechanical blockage of the wind pipe by the worms, the local swelling at the points of attachment and the accumulation of mucus due to the irritation. At first the appetite remains good but later on affected birds become emaciated, the wings droop, the feathers become ruffled and the eyes are kept half closed.

Death may take place either from suffocation or from exhaustion. The mortality in chicks is about 40 per cent. to 50 per cent., but when the infection is heavy it may be as high as 90 per cent.

In most text books it is stated that fowls over the age of 3 months are immune to gapes and that gape worms are never found in adult birds. This is certainly not the case in Ceylon where adult fowls are not uncommonly found to harbour a few gape worms in the wind pipe. Such adult birds are as a rule not severely affected but are dangerous sources of infection.

Infected adult turkeys usually show no symptoms even though they may be badly affected and hence may be unsuspected carriers of infection.

Diagnosis.—The symptoms described above may make one suspect gapes; a definite diagnosis can be made by opening wide the beak and holding the bird in such a position that the inside of the throat gets a direct light. Then look down the wind pipe when the opening into the wind pipe opens as the chick breathes. The worms can be seen clinging inside the wind pipe.

The eggs of the parasites may sometimes be detected by examining the saliva of an affected bird under the microscope.

Post-Mortem.—The carcases of birds which have died as a result of a heavy infection are always emaciated and anaemic. The inner lining membrane of the wind pipe is generally studded with small nodules as a result of the bites of the worms. The worms are found in the lower part of the wind pipe attached to the mucous membrane and surrounded by mucus which may be blood-stained.

Treatment.—Treatment is not very satisfactory in bad cases. Mechanical removal of the worms from the wind pipe is the method generally adopted. A feather stripped of its barbs

along one side is inserted into the wind pipe, twisted round and pulled out. The twisting round of the feather has a tendency to dislodge the worms and they come off with the feather when it is pulled out. Some skill and practice is necessary to do this as it is sometimes difficult to get the feather into the wind pipe owing to the automatic closing of the opening into it. The opening into the wind pipe lies at the back of the mouth and it can be observed to open and close as the chick breathes. The feather must be inserted carefully when the entrance opens.

Pointed articles such as hair pins, tweezers, "ekel", &c., should never be used to dislodge the worms. They do more harm than good by injuring the mucous lining of the wind pipe.

Various drugs such as tobacco, sulphur, carbolic acid, camphor, &c., have been tried both in the form of inhalations and in the form of local applications with little or no success.

No attempt should be made to treat badly-affected birds. As with most other poultry diseases the most economical procedure is to kill the badly-affected birds and burn the head, the wind pipe, the lungs, and the intestines.

Prevention.—As adult birds, especially turkeys, remain carriers, chicks should on no account be allowed to run along with them or be reared on ground where they have previously been housed.

Adult birds used for hatching eggs should be carefully examined before setting to see that they are not harbouring the parasites.

Chicks should be periodically examined and all suspected cases should be removed as they will be disseminating many eggs.

Chicks till they are about two or three months old should be reared on clean ground on which no adult fowls or turkeys have been running. If this is not possible then they should be reared in brooders with wire netting floors as this will prevent them from picking up the infection from the ground during the time when they are most susceptible.

Separate runs should be set aside for rearing chickens. These runs should be limed once a year, ploughed or dug up and left vacant for about two months.

Moist localities where earth worms abound should be avoided as much as possible.

Feeding and drinking utensils should be well scrubbed and washed daily preferably in hot water.

Droppings which are the main source of infection should be collected daily and removed to a distance or buried deeply.

As with most other diseases of poultry, overcrowding of runs and yards is the chief cause of heavy losses.