

special on breeding pen at Rock River Valley poultry show, December, 1879; 1st and 2nd on fowls, 1st and 2nd on chicks, and silver cup for best collection at Central Iowa poultry show, December, 1879; 1st on cock, 1st on hen, 1st and 3rd on pullets, third on cockerel, 1st on breeding pen, and 1st for best collection at the great Indianapolis show, January, 1880.

Mr. Keefer's Leghorns are noted for their fine combs, solid white ear-lobes, elegant plumage and symmetry.

Gapes in Chickens.

At the meeting of the Academy of Science on the 10th inst., Mr. Otto Lunger read a learned and valuable paper upon "parasites"—that one especially which infests the throat of fowls and is known as "gapes." The lecture was illustrated with drawings upon the blackboard, without which it cannot be intelligibly reproduced in print; but the subject of gapes is of such great interest, and was so practically handled, that I propose to condense that portion of the essay for the benefit of the public. The number of parasites in all animals which have been described by naturalists is about 2,500. Of these about thirty, belonging to the several orders of tape worms, flukes, thorn-headed and round-headed worms, infest poultry in various parts of the body. That which is most fatal to chickens, to young ones especially, is the gape-worm (*syngamus trachealis*) which adheres to the windpipe. The ravages of this pest often cause the destruction of more than three-fourths of all the young brood and the serious diminution of the farmer's wife's perquisites. When any attempt is made to cure the chicks it is seldom efficacious and often hastens death.

This worm (which belongs to the order *nematodes*) has been carefully studied by naturalists, and its organs, mode of propagation and life history are well known. It is of a reddish color, with a smooth skin. The female becomes three-fourths of an inch long and one sixteenth in diameter; the male is only about one-eighth of an inch in length, and is usually inseparable from the female. A prodigious quantity of eggs is produced, which pass through the intestines of the fowl, and by warmth and moisture are transformed into small, thread-like embryos, with an obtuse head and pointed tail. These are picked up by the chickens and adhere to their windpipes, where they mature and finally suffocate the fowls. As soon as ducks and poult are seen to open their mouths wide and gasp for breath, to sneeze and try to swallow, poultry raisers may be sure the worm is at work. The victim languishes, grows dispirited, and before many days dies. As soon as any symptoms of the disease are

observed, the sufferer should be removed immediately; and since it is not always practicable to remove the healthy fowls also, the nest room and roosting house should have the floors well covered with wood and coal ashes. As the eggs and embryos of the gape worm are voided by those affected, and picked up by the others, the importance of this precaution is obvious; and for further security against this, as well as other diseases of fowls, the floors should be well cleansed once a week, and a solution of carbolic acid be sprinkled upon them and the roosts as often as twice a month. Another preventive is feeding young chickens twice a week with wheat steeped in a solution of carbolic acid. Have the druggist prepare a mixture, as follows: One grain crystalline carbolic acid; ten drops alcohol; one-half drachm vinegar. A tea-spoonful of this mixture to one pint of water will be a proper solution in which to soak the grain. The vessels from which fowls are fed should be frequently cleansed, and they should be supplied with pure water, frequently renewed. Dr. Bartlett, superintendent of the Zoological Society's gardens, uses a weak solution of tobacco, and says the simple application of turpentine to the throat externally is sufficient to kill the worms. This, however, is severe and dangerous to the fowls. Mr. Montague found an infusion of rue and garlic in the drinking water successful.

The only remedy, said Mr. Lunger, which he had found to succeed is carbolic acid, which is affective both as a preventive and a cure, even in far-gone cases. In extreme cases make a brush out of a small quill feather, moisten it with the mixture above recommended, and insert it into the windpipe, gently turning it round once or twice. It will dislodge the worms and bring back many of them. A slow, bungling operation, however will kill instead of curing the bird, and in view of a careful, tedious nursing the patient will afterwards require, it is hardly worth while, so far as young chickens are concerned, to be at the trouble, still less to remove the worms by incision into the windpipe, which is an instantaneous cure in skilful hands.

Of course, where fowls have large range and free access to pure water they have the best chance for immunity. But as their quarters are usually confined, they must be kept clean, and should be sometimes entirely changed. To this end coops for brooding hens should have no bottoms, and should be frequently moved, especially upon any signs of gapes among the chicks.

Carbolate of lime is useful, sprinkled dry about the chicken house and yard, and mixed in the whitewash with which the premises ought to be frequently coated.

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