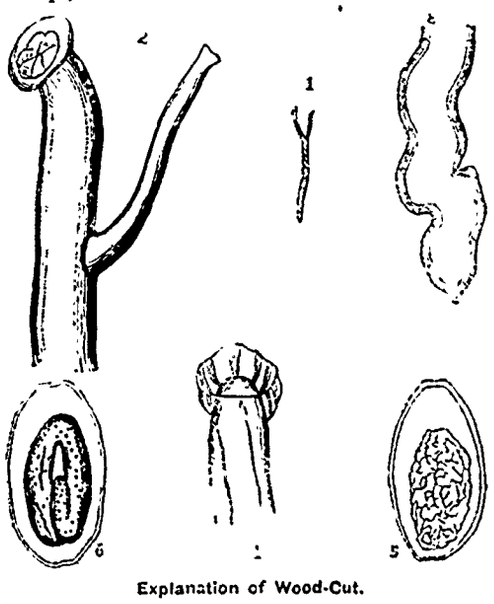
Gapes.

The nature of this disease, so very common in poultry yards is not generally known or understood, we are induced therefore to give something of its history and cure, although the theory of its propagation is yet veiled in mystery. The disease is peculiar to chickens or young fowls, and consists in the windpipe being infested with small white worms, causing the chicken to gape for breath, waste away, and finally die from suffocation. The worm is known as *sclerostoma syngamus;* and in a memoir upon the subject presented to the Linnæan society by Dr. Spencer Cobbold, he states that it has been observed in the trachea of the turkey, fowl, pheasant, partridge, duck, lapwing, black stork, magpie, hooded crow, green woodpecker, starling and swift. The probability, however, is that all birds are more or less subject to it. This gentleman performed an operation on a chicken between six and seven weeks old which was suffering from this disease, and extracted from the trachea, or windpipe, six of these parasites all of which were united in pairs, or double. The manner in which the operation was performed he thus explains. Having obtained possession of the chicken, I dipped a small piece of carded wool in chloroform and placed it in front of the bird's nostrils, it was soon rendered perfectly insensible. The skin of the neck was then divided, and the trachea slit up to the extent of about a quarter of an inch; and introducing one prong of a pair of common dissecting forceps, I removed the worms."



Explanation of Wood-Cut.

Fig. 1. *Sclerostoma syngamus*, male and female, natural size.

Fig. 2. Upper part of the same, showing more especially the six-lobed circular lip of the female, and the mode of union. Enlarged.

Fig. 3. Lower end of the body of the female, with its mucronate caudal appendage. Enlarged.

Fig. 4. Lower end of the body of the male, showing the cup-shaped bursa, hard rays, lateral muscles, digestive tube, and round tail. Magnified 30 diameters.

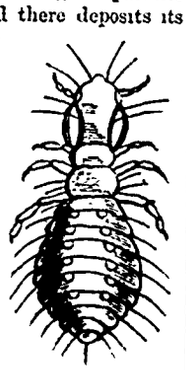
Fig. 5. Mature egg. Magnified 220 diameters.

Fig. 6. Egg, with contained embyo. Magnified 220 diameters.

"Reverting now," says Dr. Cobbold, "to the worms extracted from the trachea, I observe, in the first place, the females have an average length of five-eighths of an inch, the males scarcely exceeding one-eighth of an inch. In both sexes the bodies are tolerably uniform in breadth throughout, and that of the female measures one-thirty-fifth, whilst the transverse diameter of the male is only, from one-sixtieth to one-fiftieth of an inch. The heads are relatively even more disproportionate. In the fresh state, the mouth of the female was seen to be furnished with six prominent chitinous lips, (fig. 2)."

"In both sexes the surface of the body is quite smooth, but the female displays a series of spirally-arranged lines, which, at first sight convey the idea of a natural twisting of the body; this, however, is more apparent than real, being likewise more marked in some individuals than in others. The body of the female, towards the tail, exhibits a decided tendency to fold upon itself; and in one example this feature was very significant (fig. 3). The lower part of the body preserves a tolerably uniform thickness almost to the extremity, where it is suddenly constricted to form a short narrow mucronate tail, scarcely visible to the naked eye. Employing a pocket-lens, it is easy to observe through the transparent integument the spacious digestive canal, surrounded on all sides by sinuous foldings of the ovarium, tuba, and uterus—the vagina terminating laterally at a point corresponding with the line of the upper fourth of the body. Here the male is usually found rigidly affixed by means of a strong membraneous sucker, which proceeds from the lower part of the body. This cup-shaped appendage is formed out of a folded extension of the skin which thus envelopes the centrally enclosed and rounded tail, (fig. 4). The eggs of *Sclerostoma syngamus* are comparatively large, measuring, longitudinally, as much as the 1-250th of an inch (fig. 5.)

So much having been ascertained, it still remains to be discovered the mode in which these worms enter the trachea, or in which way the disease is propagated. This is to some extent a mystery, and constitutes the history of the egg and its development, till the time when it is found fully matured in the infected chicken, on this subject little has been known beyond the fact that damp and dirt have been conclusively proved to have a marked predisposing effect. It is a noticeable fact, however, and one which has not escaped the observation of some breeders that if you keep lice off the small chickens you will have no gapes. A recent writer on this subject states that he noticed (as almost all breeders may have) on the heads of his chickens some large insects. They were not lice; and after examining them closely he concluded they belonged to the tick family. The insect was embedded in the skin of the chick's head so deeply that when pulled off the chick would cry out in pain. From what source these ticks are derived is a matter of conjecture, they have not been discovered in the hens, although to be found in the newly hatched chick. They cannot be hatched with the chick, for in experiments in hatching chickens artificially (by an incubator) not one thus hatched had any sign of the insects on them. He then argues, as it is well known that on all animals that do not perspire, the parasites that infest the body make their way to the nostrils to drink. And in some cases (sheep for one it is stated,) the parasite either penetrates the nostril and there deposits its egg, or deposits it at the opening of the nostril, and it is conveyed back by natural causes. This egg in time becomes larva or worm, and causes disease. In the chicken the worm follows the nostril back until it reaches the opening of the trachea and there makes a lodgment; as they grow they gradually fill the opening, and thus produce the gasping for breath consequent upon partial suffocation, which is called the gapes.



We give a microscopic drawing of the insect referred to, which at first sight would seem to belong to the louse tribe, but differs in habit, as evidenced by the strong hold upon the chick's skin when attempted to be detached. In the memoir by Dr. Cobbold already referred to, he says, "by whatever mode the young (of the gape worm) make their exit from the shell, it is manifest that prior to their expulsion they are sufficiently developed to undertake an active migration; their next habitation may occur *within the body of certain insect larvæ*. It is important therefore that when detected in the young chick these parasites should be got rid of, for which purpose the following ointment, will be found an effectual remedy. Mercurial ointment, one ounce; pure lard, one ounce; flour of sulphur, one-half ounce; crude petrolium, one-half ounce; this ointment well compounded and applied in a semi-fluid state to the head of the chicken at the time of taking them from the nest will prove most effectual.

Gapes scarcely ever trouble a clean and dry yard; and the free use of carbolic disinfecting powder is an almost certain preventative, and on this as on every other account very desirable where chickens are reared in large numbers.

When the disease, however, has entered a yard, it may be checked in its progress by adding fluid carbolate, camphor, or even lime, to the drinking water. The sufferers themselves should be forced to inhale the vapor of carbolic acid. Some of the clear transparent quality may be placed in a spoon or metal saucer, and held over a candle or lamp, when dense white fumes of the acid will arise. In these the chicken's head is to be immersed till the bird is nearly suffocated; or if a large number have to be treated, the whole may be confined in a box and fumigated at once, being carefully watched through an aperture covered with a piece of glass, else the chickens will be killed as well as the worms.

How to Manage Poultry.

I am one of many who not only believe, but know from experience, that there is no stock kept by the farmer that will pay so large a return, for money expended, as a well-managed poultry-yard. As we cannot compete with our Western farmers in the production of pork, with grain at ten cents per bushel, let us devote more attention to poultry, that will pay us five hundred per cent. more than pork; and as to manure, will produce "for each bushel of food," a much more *valuable quality* of manure. Small potatoes, beets, pumpkins, cabbages—in fact any crop usually fed to swine, can be profitably dealt out to the fowls.

Now comes the question, How shall it be done? Without theorizing, I will give my method of keeping. Select 200 young fowls, Nov. 1st, in laying condition; place them in separate coops, from 12 to 15 in each; at night put one bushel of small potatoes, beets, or pumpkins into your boiler, "which should be convenient to the coops," adding one quart of onions; boil fifteen minutes; then add four quarts of corn meal; after well mixing, cover the mess, and in the morning your fowls will enjoy a warm breakfast at a trifling expense. At noon feed oats, and at night corn, taking care that they are supplied with clean water and plenty of shells. Salt the mess *occasionally*, and once a week a little fresh beef is very beneficial. A flock of 200 *well-fed* fowls can be kept at an expense of 75 to 80 cents per day. My winter eggs sell at the door at 40 to 50 cents per doz.; therefore the price of two dozen eggs feeds my flock; and when I collect from eight to ten dozens per day we can easily figure the profits. The manure fully compensates for the care of feeding, etc.

It is as necessary for the farmer to have a warm room to start his early chicks in as a hot-bed is for his early vegetables. Now is the time to heat this room. Sit every hen you can get, so that March 1st will find you with 200 or 300 hundred chickens; the young cocks will bring $1 each in June. Here comes in your profit, as the same cocks would not command higher prices if kept all summer for Thanksgiving and your pullets will commence laying early in the Fall, taking the place of the 200 hens, which will be found fat and ready for Thanksgiving market. Having experimented with nearly every known breed, I unhesitatingly pronounce the Light Brahmas and the Partridge Cochins, as egg-producers and market fowls, far superior to all others.—*J. S. Ives, in Rural New Yorker.*