

and under the tongue, they will find minute yellow or white spots or specks, sometimes not larger than a pinhead; this gradually grows larger, and the whole tongue and mouth may be coated with a dense yellowish membrane extending to the air-passages in the nose and eyes. If the temperature is taken per rectum it will be found to be 107° or 108° , the ordinary temperature of fowls being 104 to 106 deg., and the fowl will frequently give a peculiar sort of 'pit' or cough, as if something were in the throat which they wished to get rid of. The eyes very often become affected with the same yellowish membrane, which seems to grow on all the mucus membranes about the head. They have difficulty in swallowing (some of them do), caused I think by paralysis of the muscles of the throat. Of course this is in cases where the disease has had a pretty long course; and if there is sufficient strength to last so long, there is paralysis of the legs, an inability to get up. This complaint which I have just described, is very infectious and will be conveyed from fowl to fowl through the drinking and feeding vessels, and attacks them (especially the young) at any time of the year, and is not dependent on atmospheric changes, and so far as I know and have learnt, is very fatal, and refuses to yield to any treatment, unless in very isolated instances. When it gets into a large poultry-yard, I should say under the old treatment, there was a mortality of 75 per cent. From the manner in which it comes on, I place it as a constitutional disease rather than a local one like the one I described first, and consequently it requires constitutional treatment. But before this could be got at intellectually, it was necessary to determine what was the cause of the constitutional disturbance. My friend Dr. H. A. Stevenson, Bacteriologist to the Medical Department of the Western University at London, Ont. (also a chicken-crank), undertook to make cultivations of this yellowish membrane, and found that it gave almost identical results with the diphtheria membrane in the human subject. Having determined this, what was simpler than to experiment with the greatest of modern discoveries in medicine, the antitoxine of diphtheria, which has reduced the death rate in that most fatal disease from sixty to ten per cent., and Dr. Stevenson's experiments have been carried on for about two years, and he has yet to find a single case in which it has not

proved successful. Since January, 1898, he has given over one hundred and fifty injections without a single death, but in some there was some paralysis which gradually subsided. He has used the serum in a number of my birds, both fowl and pheasant, and in every case there was perfect recovery.

The serum which he has used was kindly donated by H. K. Mulford, of Philadelphia—is a weak antitoxin of about 100 units. He gives from 150 to 300 units to fowls weighing four to five pounds, and as much as 300 units to heavier birds. It is better to give too much than too little, as it is quite innocuous. A second injection in severe cases is advised on the second day after. And more than this, he has proved that by injecting fowls exposed to the disease, that they were immunized or protected from taking the disease.

I have been led to write this article from reading one by Dr. Stevenson in the "Farmer's Advocate," published in London, the May number, and also another reason, that it has produced so great results in my sick birds, as I had a good opportunity of watching the action, for my birds were used for the first experiments. I should advise anyone interested in this to get that paper, and he will find just how it is done. Both Dr. Stevenson and myself are only anxious that all breeders of poultry should profit by our experiments, which, if properly carried out, will almost revolutionize poultry culture. Our thanks are due to H. K. Mulford for supplying us with the serum.

Before ending this rather long paper, I would like to impress on all poultry breeders the necessity of distinguishing between these two diseases, which have the head and air passages for their base. The one is a purely local disease, the other is a constitutional one. The first is usually associated with some change in the climate or surroundings, the other may come on at any time, and does not seem to depend on atmospheric change. It is time to give them different names—call one 'Influenza' (or grippe), the other 'Diphtheritic Roup.'

Another point that cannot be too strongly emphasized, is that fowls suffering from the diphtheritic roup should not be used in any way as food, as the membrane which is associated with the disease is so nearly allied to that disease which is so dangerous to the human family, and I have no doubt but that