

tween diphtheria, which is said to be characterized by the presence of a membrane upon the throat, and roup, meaning in a restricted sense, the disease which attacks only the mucous surfaces of the nostrils and eyes, frequently causing the destruction of the latter by accumulation and pushing forward of a yellow, cheesy secretion behind the eyeballs. The two varieties of the disease have been examined, but the very limited number of cases observed makes any statement about their identity of little value.

I. EXPERIMENTS TO ISOLATE ROUP BACTERIA FROM DISEASED FOWLS.

Pure cultures of bacteria have already been isolated from hens suffering with roup, and some of these have proved pathogenic towards guinea-pigs; but no one, so far as I can learn, has yet been able to reproduce the disease in healthy hens with such cultures.

This failure suggests that the culture media have not yet been of the right sort; that the bacteria do not develop at all or, if they do, are too feeble to grow on healthy tissues; so, acting upon this idea, special media have been prepared from flesh of fowls

instead of the beef ordinarily employed, and blood serum made entirely from hens' blood. Later, when the notion that the disease might be due to the growth of an amoeboid organism was advanced, a medium used by Celli and Fiocca for the artificial propagation of amoebae was tried.

EXPERIMENT I.

Twelve healthy brown Leghorn hens were treated daily with bouillon cultures of bacteria isolated from two roup birds. Six species of bacteria, separated in pure culture from the two diseased birds, were fed each day with the drinking water to the six pairs of healthy fowls that were kept carefully confined in order that the same kind of bacteria might always be administered to the same birds.

It was hoped that one of the six varieties of bacteria might prove to be the roup-producing species, and by causing the re-appearance of the disease positively confirm its disease-producing powers. After six weeks of this treatment all of the hens remained healthy and vigorous, and the experiment was terminated as unsuccessful.

The roup birds were a white Leg-

horn hen with inflamed and slightly swollen eyes and affected nostrils, and the other bird, a buff Brahma hen, had one eye completely closed and badly swollen. Neither bird possessed any membrane upon the throat as in diphtheria. Both subsequently died without recovering from the effects of the disease. For the isolation of the bacteria in pure cultures "rooster-agar" was used, and for infecting the drinking-water a bouillon prepared from similar ingredients by extracting five hundred grams of rooster meat with one thousand cubic centimeters of water, and adding to, the watery extract ten grams of Witte's peptone and 2.5 grams of NaCl per liter, finally bringing the reaction to the point when five cubic centimeters of the medium required 1.50 cubic centimetres of $\frac{N}{20}$ NaOH to neutralize it. Various reactions were tried but 1.0--1.5 appeared to be the best.

EXPERIMENT II.

A brown Leghorn hen said to be suffering from roup was used to make a number of agar plate cultures, but the doubtful nature of the disease and the results of the bacteriological plates did not warrant any new experiment being commenced.

The work was repeated to insure having uniform and undoubtedly infectious material.

EXPERIMENT III.

Six late hatched pullets and four healthy, vigorous hens were kept confined with a case of roup as typical as it was possible to obtain. The eyes of the healthy fowls were rubbed daily with the exudate from the sick bird, and all were permitted to mingle together and to drink from the same receptacle. It was expected in this way that plenty of material might be secured which would be uniformly the same and surely contagious. The sick hen came from a flock that already had lost thirty-five or more of its members from the disease, and in her case one of her eyes had been entirely destroyed, and the orbital cavity filled with the yellow secretion. No diphtheritic membrane was present. She was considerably emaciated but recovering slowly, and afterwards became entirely well.

(To be Continued.)

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