New York Meeting.

New York Academy of Medicine, December 21, 1932.

6463

Etiology of an Uncomplicated Coryza in the Domestic Fowl.

JOHN B. NELSON. (Introduced by C. Ten-Broeck.)

From the Department of Animal and Plant Pathology, The Rockefeller Institute for Medical Research, Princeton, N. J.

The domestic fowl is subject to an infectious coryza, generally known as contagious catarrh, which under laboratory conditions remains localized in the nasal and orbital passages. In this respect it is unlike the coryza of laryngotracheitis, fowl pox, and fowl cholera from which there is commonly an extension of the etiological agent to other loci with the production of characteristic lesions.

Contagious catarrh was recently studied in Holland by deBlieck,[1] who isolated an organism resembling the *B. influenzae* of man from exudate streaked on an aerobic blood agar plate. Pure cultures of the bacterium when injected intranasally in normal fowl regularly produced a nasal discharge.

In the present investigation an uncomplicated coryza was initiated and subsequently maintained in a flock of disease-free birds by the intranasal injection, through the palatine cleft, of exudate originally obtained from naturally infected fowl. A nasal discharge, the only consistent symptom, generally appeared after an incubation period of 24-48 hours and continued, on the average, for 11 days.

The etiological agent of the coryza was not established by the injection either of bacteria isolated from aerobic plates or of exudate filtered through Berkefeld V and N candles. The bacteria were the usual mucous membrane inhabitants, among them several strains of a hemophilic bacillus similar to *B. influenzae*.

It was subsequently found, however, that the fluid from blood agar cultures of exudate which had been filtered through certain

[1] deBlieck, L., *Vet. J.*, 1932, **88**, 9.

Berkefeld V candles contained a small, non-motile, Gram-negative bacillus apparently in a pure state. The organism grew sparsely in fluid blood at the base of slanted agar but failed to colonize on the slant or on the surface of aerobic blood agar plates. Colonization was later initiated by sealing the plates with modeling clay.

A typical coryza was produced in normal birds, 35 in all, by injecting the bacillus into the palatine cleft. The same organism was recovered from the nasal exudate induced in these birds, at first by filtration and later by the use of sealed plates. The duration of the period of nasal discharge, averaging 5 days, was shorter than that of the coryza produced by exudate. There was also an indication that the bacillary coryza was less communicable by direct contact. Thus, of 5 normal birds in contact with 5 which had received an injection of the bacillus, 2 developed coryza, whereas all of the 5 in contact with a similar number injected with exudate developed coryza.

It was found that recovery from the coryza of bacillary origin was commonly followed by a state of resistance to reinfection. The time limits of the period of resistance were not determined. Cross protection tests were subsequently carried out to ascertain whether there was any fundamental difference between the coryzas produced by exudate and culture, respectively. Four birds which had recovered from the bacillary coryza were resistant to an infective amount of exudate and a similar number which had recovered from the coryza produced by exudate were resistant to an infective amount of culture. It is believed that the demonstration of reciprocal protection establishes the etiological relation of the bacillus to the coryza.

Cultural studies on the organism are not complete, but its failure to colonize on aerobic blood agar plates together with an inability to multiply in media containing sufficient accessory material of plant origin to support growth of *B. influenzae* appears to exclude it from the group of true hemophilic bacteria.