

PSITTACOSIS

BY K. F. MEYER

IN recent years it has become evident that a virus disease inducing human illness in single instances or as house epidemics occurs as an avian infection not only among wild parrots, parrakeets, parrotlets, lorikeets, etc., but also among various species of finches (Meyer and Eddie, Proc. Twelfth Internat. Veterinary Congress, 3: 182, 1935). The important and interesting recognition by R. K. Rasmussen-Ejde in 1934 (Ugesk. f. Laeger, 96: 691, 1934; 100: 989, 1938) that a peculiar type of pneumonia among the inhabitants of the Färoe Islands is clinically indistinguishable from psittacosis has been bacteriologically and serologically confirmed by Haagen and Mauer (Centralbl. f. Bakteriol., I. Abt., Orig., 143: 81, 1938) and by Bedson. As sources of the infective agent, the young petrels or Fulmars (*Fulmarus glacialis glacialis*), which are caught and preserved for food during the summer months, have been recognized. Thus the wide distribution of the psittacosis virus even in non-tropical birds is again emphasized. In this connection, a number of pertinent facts deserve brief consideration.

(1) The word psittacosis (from *psittacus*, a parrot) was suggested by Morange in 1895. It is used to designate a peculiar contagious disease of man which follows either fleeting or prolonged exposure in a room, store or aviary where visibly diseased or apparently healthy birds are held in captivity. The avian disease which, except in a few instances, has always been the source of the human infections, exhibits clinical and anatomical manifestations fundamentally different from those observed in man. Aside from birds in no way related to the representatives of the Order Psittaciformes, a great many mammals have a natural disposition for the virus. The infection spectrum is therefore broad and parasitism of many species of birds and even mammals may be anticipated. It is not unlikely that the virus is an effective population regulator responsible for many of the 'crashes' in the animal kingdom. The avian infection is frequently latent and in its clinical manifestations is by no means characteristic. For the human disease, in order to emphasize the specific anatomically distinct type of pneumonia which so often governs the clinical picture, one could use the succinct term 'ornithic pneumonia' or 'pneumonia ornithosa.' Haagen and Mauer, guided by similar ideas, suggested the replacement of the designation psittacosis by 'virus pneumonia' or 'epidemic pneumonia.' The former would distinguish

the psittacosis pneumonia from that caused by bacterial agents. However, such a proposal does not take into consideration the fact that aside from the specific influenza pneumonia, other virus pneumonias, as for example the type recently recognized by H. A. Reimann (Journ. Amer. Med. Assn., 111: 2377, 1938), may be discovered. An endless chain of confusion would follow. The origin of the virus in the heterogeneous infection chain should be noted in the name of the disease. Although psittacosis is frequently seen in mass distribution, single cases and atypical forms are not uncommon. In fact, future inquiries into the incidence and distribution of the disease must take into consideration the occurrence of subclinical infections. A recent observation supports this contention.

During the middle of December, a man and wife had intimate contact with a diseased Mexican parrot. The bird while visibly sick was permitted to pick seeds from the lips of the owners. In the bird store, this bird together with two others, which died from psittacosis, infected an older Panama parrot in the adjacent cage. The man contracted a moderately severe infection accompanied by a patchy pneumonia and encephalitis. His blood serum gave on the ninth day of the disease a complement fixation reaction, with a specific L. C. L. antigen, in a dilution of 0.06, and on the twentieth day 0.015. His wife was perfectly well but her serum also gave a specific reaction in a dilution of 0.1 on the same day the blood of the husband was found to be positive. Similar observations have been made before but since sensitive diagnostic methods were not available, the epidemiologic implications could not be proven. In future, the sera of the patients suffering from atypical pneumonia should be submitted to a complement fixation test with the psittacosis virus.

(2) The observations made by R. K. Rasmussen-Ejde that the Färoe disease is entirely conditioned by the handling of the young and not the old Fulmars confirm the epidemiologically recognized and experimentally proven high susceptibility of immature Shell Parrakeets by Meyer and Eddie in 1933. The petrel disease offers, therefore, another example relative to the increasing importance of the physiological maturation in the pathogenesis and susceptibility of virus infections.

(3) Epidemiologists expressed the opinion that the prevailing disposition to respiratory infections during the colder months of the year favored the spread of psittacosis during the winter. The California observations failed to support these views. The seasonal fluctuations in the number of human cases were influenced only by the

prevalence of infected birds. Usually in the fall and early winter immature carriers, sick birds and their mates, which cannot resist the rigors of transportation, reach their destination and are readily capable of spreading psittacosis. Again, the experiences in the F aro Islands confirm these deductions. Although the malady is strongly conditioned by the season, it depends on the available sources of infections with which the people have contact. With the exception of one case, 174 human infections occurred between August 30 and September 25 when young birds are caught. Adult Fulmars are frequently handled during the winter; but no human disease has been reported.

(4) For the benefit of naturalists, those interested in ornithology, and epidemiologists, it may not be out of place to list (according to Peters' 'Check list of birds of the world') the orders and species of birds which may spontaneously be infected with psittacosis. The natural susceptibility of other species, although not listed, has been proved.

Order PROCELLARIIFORMES

Family Procellariidae: *Fulmarus glacialis*

Order PSITTACIFORMES

Family Psittacidae

Subfamily Loriinae

Trichoglossus chlorolepidotus, *T. haematod moluccanus*; *Kakatoe sanguinea* and *K. galerita galerita*

Subgenus *Eolophus*: *Kakatoe r. roseicapilla*; *Nymphicus hollandicus*

Subfamily Psittacinae

Ara macao; *Aratinga pertinax tortugensis*, *A. p. margaritensis*; *Nandayus nanday*; *Forpus passerinus*, *F. spengeli*, *F. c. conspicillatus*; *Myiopsitta m. monachus*; *Graydidarculus brachyurus*; *Pionus menstruus*; *Amazona f. festiva*, *A. b. barbadensis*, *A. a. aestiva*, *A. a. albifrons*; *Psittacula krameri manillensis*, *Ps. e. eupatria*; *Alisterus s. scapularis*; *Agapornis roseicollis*, *A. personata*; *Platycercus e. elegans*, *P. e. eximius*, *P. zonarius semitorquatus*, *P. a. adiscitus*, *P. eximius ceciliae*; *Psephotus haematonotus*; *Melopsittacus undulatus*

Order PASSERIFORMES

Family Ploceidae

Subfamily I, Viduinae: *Lagonosticta senegala*, *Munia oryzivora*, *Poephila mirabilis* and *gouldiae*

Family Fringillidae

Subfamily Fringillinae: *Carduelis carduelis* and *C. major*, *Chrysomitris tristis*, *Serinus canaria*, *Pyrrhula europaea*, *Cyanospiza ciris*

George Williams Hooper Foundation

University of California

San Francisco, California