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Summary of Papers on Selected Viral Zoonoses

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The authors of these papers have presented excellent reviews of important viral zoonoses in the Western Hemisphere. It is befitting this audience to hear these summaries which reveal the complexity of these three diseases presented by individuals who are excellent ecologists. Each of these authors is actively working with a team of investigators representing many disciplines including veterinarians, virologists, physicians and other ecologists in an attempt to unravel the parasite-host-reservoir relationship of rabies, influenza viruses and arboviruses.

From the paper presented, it is apparent that we must continue to live with these agents which cause disease in our animal and human populations. And, while our primary job at local, state and federal levels will be to control these diseases in domestic animals and man, we can expect continued refreshing approaches to the study of these diseases by these authors and others like them, many of whom are in this audience. Their ecologic studies should provide the understanding needed if wider area control and ultimate eradication of these diseases will ever be realized.

Dr. McLean has given us an excellent review of the literature and surveillance of wildlife rabies and has presented various hypotheses which have been proposed concerning the ecology of this disease. He admits that there is insufficient information available to support or exclude various reservoir mechanisms which allow the virus to be maintained in nature. Regarding control of rabies in wildlife, Dr. McLean expects methods of population reduction to continue to be practiced until new methods such as use of gametocides and/or immunization of wildlife hosts can be developed.

The concepts involving the ecology of arboviruses presented by Dr. Lord were stated very clearly. He injected the concept that arboviruses require "built in compensatory safeguards" to counter the narrow host specificity, uncertain mechanism of overwintering and restricted means of dispersal of these viruses. His concept of an enzootic (consuetudinal) system representing the more ideal host-parasite relationship, not necessarily including a vector, is very interesting and should be studied in much more detail. Certainly most studies are conducted in epizootic areas where vectors are involved in the host-parasite relationship. Eastern, Western and St. Louis Encephalitis (EE, WE, SLE) were cited as examples of the consuetudinal system with birds being the enzootic hosts. In these instances, it is thought that reptiles serve as maintenance hosts for these viruses.

Dr. Winkler presented an excellent review of animal influenza viruses and their possible relationship in human influenza. His objective review serves to remind us that evidence is lacking which will make any of the animal influenzas clearly defined zoonoses. However, the fact that the age cohort studies of persons born before 1918 had significantly high antibody against swine influenza virus whereas those born since that time do not, would indicate strongly suggestive evidence that in that instance swine influenza might well have been classed as a viral zoonotic disease.

The close relationship between A₂ and A/Equi/2 viruses probably indicates a disease of humans that was transmitted to animals. The animal populations so susceptible to the human influenza viruses in any event provide an area of much needed ecologic studies and I am sure that Dr. Winkler and his colleagues at the University of Wisconsin and at NCDC will continue to study and provide more enlightenment concerning these relationships. It seems that avian strains of influenza viruses might be more desirable models of study for studying mutation and antigenic relationships and similar human isolates.

Our colleagues from Mexico, Drs. Cardenas Lara and Eutemio Gonzalez, presented us with their unique challenge, first to control urban rabies and then to delve more into their derriengue problem. Their success in controlling dog rabies in Mexico, especially along the U.S. Mexico border states, serves as a reminder that programs of canine immunization and control of strays are effective in this phase of rabies control. We look forward to their progress and that by others of FAO and WHO in working on the bat-cattle rabies problem that plagues not only Mexico but other Latin American countries.

ABSTRACT

Bacterial Diseases Transmitted to Man by Bony Fishes*

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Fish may serve as more important vectors of human infectious diseases than is generally realized. Evidence from the literature and the author's personal experience indicates that fish may be active as well as passive vectors of a number of mammalian bacterial pathogens introduced into the aquatic environment by human sewage or diseased animals. Pathogenic species of the following genera are prime suspects: *Aeromonas*, *Pseudomonas*, *Proteus*, *Escherichia*, *Vibrio*, *Salmonella*, *Shigella*, *Mycobacterium*, *Staphylococcus*, *Clostridium*, *Erysipelothrix*, *Leptospira*, and *Pasteurella*. In particular, the need for much more research on the possible role of fish as vectors of human infectious disease is stressed because of the increasing use of fish as human food, increasing contamination of the aquatic environment with human wastes, and the increasing direct contact between man and the aquatic environment.

*This paper will be published in full in the 1970 Symposium on Fish Diseases, American Fisheries Society.
