

PAPERS AND PROCEEDINGS OF THE 16th ANNUAL MEETING

of the

AMERICAN MOSQUITO CONTROL ASSOCIATION

Held Jointly with the Northeastern Mosquito Control Association
Boston, Massachusetts, March 27-30, 1960

Part I*

PANEL ON EASTERN ENCEPHALITIS

Synopsis by RICHARD O. HAYES (Moderator)
Taunton Field Station, Taunton, Mass.

The moderator introduced the panel members (see Program, *Mosquito News* 20:1) and presented a brief history of eastern encephalitis (EE). EE virus infection is one of three arthropod-borne encephalitides which affect man in the United States. The virus attacks the central nervous system and the resulting symptoms include fever, drowsiness, convulsions, and coma. Approximately 70

percent of the clinical cases are fatal. Eastern encephalitis is found in the United States mainly along the eastern seaboard from Massachusetts to Texas on the Gulf of Mexico. In 1959 EE was found in at least six eastern states. During 1959 the first outbreak among humans in New Jersey occurred, and the first record was made of the virus affecting ducklings on Long Island, New York.

VIRUS VECTOR RESEARCH

ROY W. CHAMBERLAIN

The speaker pointed out that EE is primarily a bird disease and that the enzootic (wild animal) vector must be a bird feeder, probably feeds at night, and must be susceptible to infection and capable of transmission. *Aedes* and *Psorophora* do not generally fit the requirements, and

Mansonia perturbans is usually not abundant enough late in the summer to be involved in the enzootic cycle. Twenty-two of the thirty isolations of EE from naturally infected mosquitoes incriminate *Culiseta melanura* as the enzootic vector among the wild bird hosts. Although EE isolations have been made from *Culex salinarius*, laboratory experiments indicate it is not a likely vector. *Anopheles* species are also poor vectors in the laboratory. Eleven of 15 isolations of western encephalitis from mosquitoes in the Eastern United States were obtained from *Culiseta melanura*.

The criteria for an outbreak among

* The Proceedings papers included in this issue of *Mosquito News* comprise all the papers that had been received in final form for publication on the date of going to press, May 13, 1960. It is planned to publish in the September number papers which have not yet been received and those which had to be held for revision, correction of illustrations, and similar reasons.

humans (epidemic cycle) include a high mosquito population, a high infection rate in wild birds, and a non-immune horse or high human population at a given time. It was pointed out that *Aedes vexans* might

have been involved as the vector species in the 1938 Massachusetts epidemic and that *A. sollicitans* might have been the epidemic vector in the 1959 New Jersey outbreak.

THE IMPORTANCE OF BIRDS AND BIRD MOVEMENT

DONALD D. STAMM

Studies to determine whether or not birds are involved in dissemination of EE virus from fresh water swamp habitats are being conducted. Bird census and blood sampling methods of the study were described. Recapture and rebleeding of individual birds has given information which will be evaluated to determine whether or not the amount of virus transmission and the number of birds present correlate directly. Up to 500 blood sam-

ples have been taken during a 12-day period, and viremias in as much as 5 percent of the birds have been encountered. Dr. Stamm believes that encephalitis transmission is closely associated with high bird densities—such as occur in swamps. Thus the danger of transmission of EE to man increases when high bird population densities become established, or build up periodically, near human habitats.

CONNECTICUT STUDIES ON EASTERN ENCEPHALITIS

ROBERT C. WALLIS

Since no human cases of EE have been reported from Connecticut, the studies there initially involved transmission to pheasants being reared on game farms. It was concluded that initial transmission to pheasants is mosquito-borne, but that most of the pheasants are infected by feather picking and cannibalism. Recently a search for the vector transmitting EE to

horses in the state resulted in the isolation of EE from *Aedes vexans*, and it is believed the species is involved there in spreading the disease from birds to horses.

Laboratory evidence indicates that non-blood-sucking insect larvae may be involved in spreading the virus among the wild bird population.

1959 NEW JERSEY OUTBREAK

DANIEL M. JOBBINS

Human cases of EE in New Jersey occurred for the first time during 1959. There were 33 confirmed cases; of these, 21 died; 2 individuals recovered from remarkably mild clinical cases. The cases occurred between August 16 and October 15. Most of the cases occurred in the southern part of the state within a 60-mile area along the east coast of the state—especially in communities situated adjacent to woodlands or swamps. Horse cases (56) and pheasant outbreaks (16) also

occurred, and even though there are many more pheasant farms in the north than in the south, most of the pheasant infections occurred in south New Jersey—as did the horse cases. Virus isolations were made from *Culex restuans*, and from two other mosquito pools which were composed of several mosquito species, or of unidentified specimens. EE virus was also isolated from two species of wild birds: House Sparrow, and Myrtle warbler.