

ENDEMIC VECTORS OF VENEZUELAN ENCEPHALITIS

P. Galindo^{1, 2}

There are 41 species belonging to 11 genera of mosquitoes that have been reported naturally infected with endemic viruses of the VE complex (2, 3, 4, 6, 7, 14). Of these, 20 belong to the genus *Culex* and 13 to the subgenus *Melanoconion*. Of a total of 406 isolations reported from naturally infected mosquitoes, 286 or 70 per cent were obtained from *Culex* (*Melanoconion*) females. In addition, the only two species of mosquitoes that have been proved to be efficient natural vectors of endemic VE are *Culex* (*Melanoconion*) *aikenii* (8) and *C. (M.) portesi* (3).

Based on these facts, the conclusion may be reached that some *Culex* species of the subgenus *Melanoconion* are the principal natural vectors of endemic VE viruses throughout their range of distribution. However, the number of isolations obtained from wild-caught specimens belonging to other taxa, coupled with experimental work demonstrating the efficiency of mosquitoes other than *Culex* in the transmission of these viruses (12), appears to indicate that other groups besides species of *Culex* (*Melanoconion*) may be involved at least as secondary vectors in the natural transmission of endemic viruses of the VE complex.

It would seem that the critical factors which determine vectorship of a particular species of

mosquito are its accessibility to the blood of vertebrates circulating moderate to high titers of viruses and the threshold of infection for each species of mosquito. Since wild rodents are known to develop fairly high viremias of VE for several days (10, 16) and have been frequently found infected in nature (6, 7, 14), mosquitoes that habitually feed on these vertebrates are to be considered prime suspects as natural vectors of the virus. It must be pointed out, however, that recent experimental work (10) has demonstrated that other vertebrates, such as sloths and herons, are capable of circulating fairly high titers of virus for more than one day. These titers were found to be sufficiently high to infect at least the more efficient mosquito vectors such as *Culex aikenii* (11). It is thus possible that secondary natural transmission chains, other than the usual rodent-mosquito-rodent cycles, may exist in some areas.

The discussion that follows will deal exclusively with *Culex* (*Melanoconion*) mosquitoes, which we consider to be the principal vectors of endemic VE viruses.

The subgenus *Melanoconion* of *Culex* is a taxon almost exclusively of neotropical distribution with a few incursions into the nearctic region. It includes approximately 130 described species, of which fewer than 10 per cent have been reported naturally infected with VE virus. Most of the species that have been found harboring the virus in nature belong to two closely related categories, the *spissipes* and *aikenii* groups. Some morphologic characteristics of the larvae

¹ From Gorgas Memorial Laboratory, Panama, Republic of Panama.

² All work on which this report is based has been partly financed by Grant AL02984 from the National Institute of Allergy and Infectious Diseases.

