PHORETIC RELATIONSHIP BETWEEN BIRD MALLOPHAGA AND MOSQUITOES

W. L. JAKOB AND R. B. EADS

Vector-Borne Diseases Division, Center for Disease Control, Public Health Service, Department of Health, Education, and Welfare, Fort Collins, Colorado 80522

The phoretic relationship between Mallophaga and Hippoboscidae is common. Keirans (1975a) listed over 400 records of biting lice attached to louse flies seeking transfer from one vertebrate host to another. Phoresy appears much less common between Mallophaga and other insects. Keirans (1975b) cited records of biting lice from Siphonaptera, Diptera (other than Hippoboscidae), Odonata, Hymenoptera and Lepidoptera. The few records of Mallophaga from mosquitoes known to us involve the mammalian parasite, *Bovicola meyeri*, and *Aedes* spp.

We report here 2 separate recoveries of bird Mallophaga associated with *Culex* mosquitoes from Ecuador and 1 from Brazil. During the period 1974–1978, more than 500,000 mosquitoes have been collected and processed for virus isolations in cooperative arbovirus studies conducted in this laboratory and by Dr. E. Gutierrez, National Institute of Hygiene, Guayaquil, Ecuador. The mosquitoes have been primarily collected in CDC light traps, supplemented with carbon dioxide.

A biting louse (*Formiphagus* sp.) was found attached by its mouth parts to the proboscis of a ♀ *Cx. nigripalpus* mosquito collected in Los Rios Province, Ecuador, June 11, 1974. Over 170,000 *Cx. nigripalpus* have been examined from Ecuador. A second biting louse (*Formicaricola* sp.) was recovered in association with a pool of *Cx. vomerifer* collected in Vinces Province, Ecuador, May 10, 1978. At first glance the louse appeared to be affixed to a leg, but it came free so readily there may have been another attachment site. Approximately 1,000 *Cx. vomerifer* have been examined from Ecuador.

The third recovery of a mallophagan from a mosquito involved a louse (*Formiphagus* sp.) attached to the proboscis of a ♀ *Culex (Culex)* sp. collected in a CDC light trap (with carbon dioxide) in Iguape, São Paulo State, Brazil, April 19, 1976. The mosquito was too battered to permit specific identification. Approximately 40,000 mosquitoes (2200 of them *Culex (Culex)* spp.) were collected by a variety of methods in 1975–76 in São Paulo State by Dr. Oscar de Souza Lopes, Instituto Adolfo Lutz, São Paulo. The mosquitoes were received by this laboratory for virus testing in connection with an epidemic presumably due to a newly recognized flavivirus, Rocio virus.

We thank Dr. K. C. Emerson, the distinguished authority on Mallophaga, U.S. National Museum, Washington, D. C., for identifying the lice. Since all were ♀♀, specific determinations were not possible. He has informed us that the hosts of these 2 genera are antbirds, family Formicaridae, found only in the Neotropics.

References Cited

Keirans, J. E. 1975a. A review of the phoretic relationship between Mallophaga (Phthiraptera: Insecta) and Hippoboscidae (Diptera: Insecta). J. Med. Ent. 12:71–76.

Keirans, J. E. 1975b. Records of phoretic attachment of Mallophaga (Insecta: Phthiraptera) on insects other than Hippoboscidae. J. Med. Ent. 12:476.

A RAPID GONOTROPHIC CYCLE IN *CHAGASIA BONNEAE* FROM BRAZIL

TONY J. WILKES

Mosquito Behaviour Programme, School of Biology, University of Sussex, Falmer Brighton BN1 9QG England

J. DEREK CHARLWOOD

Instituto Nacional de Pesquisas de Amazonia, Cp 478 Manaus 69000 Amazonas Brasil

During a study of *Anopheles darlingi* Root in Brazil (Charlwood & Wilkes 1978) several *Chagasia bonneae* Root were caught biting man at dusk and were subsequently dissected using Polovodova's technique for physiological age grading of blood sucking insects (Detinova 1962). The results may be of interest in future epidemiological investigations involving this little studied species.

The study took place in April 1978 at the end of the rainy season in the village of Aripuaná (10° 19′ 42″ S 59° 12′ 30″ W population ca. 600) in the northern part of the state of Matto Grosso, Brazil. Biting catches were performed approximately 25 m. from the tropical rain forest which surrounds the village. A collector, sitting under a temporary shelter, caught mosquitoes in test tubes as they came to