4 Disease Transmission

Because of their blood-sucking habits and intimate association with man, often under conditions of filth and disease, the bed bugs have long been suspect in the transmission of human diseases. According to Girault (1906a), who reviewed the early literature on pathogenic relations of the bed bug, Elias Metschnikoff (1887) was the first to suggest that the bed bug might be an agent in the transmission of human diseases. Nuttall (1900), on the basis of his own experiments and a critical review, concluded that there was no positive evidence to incriminate the bed bug. Zumpt (1940) in a later study and Burton (1963), reviewing more than half a century of work, came to the same conclusion. Burton's survey of 93 publications showed that laboratory experiments had led certain investigators to the conclusion that bed bugs transmit leprosy, oriental sore, kala-azar, Q fever, relapsing fever, and brucellosis. Transmission, however, was not scientifically proved. Burton reports that bed bugs have been found infected in nature with *Wuchereria bancrofti, Brugia malayi, Trypanosoma cruzi, Brucella melitensis, Coxiella burnetii,* and rickettsiae causing exanthematous typhus, but that proof of transmission of the associated diseases was lacking. Table 4–1 summarizes the maximum survival time in bed bugs of the causative organisms of diseases suspected of being transmitted by bed bugs.

Cimicidae also have been suspected of transmitting trypanosomes between bats. Bowhill (1906) first observed blood parasites in South African bats and suggested, but did not prove, that *"Acanthia pipistrelli* Jenyns" (probably *C. lectularius*) was the vector. Pringault (1914) in Tunis likewise suggested that *"Cimex pipistrelli" (Cacodmus?)* was the transmitting agent of trypanosomiasis between bats. Chatton and Blanc (1918) cultured the trypanosome of a gecko in the bed bug. More recently Berghe et al. (1960) found trypanosomes in the blood of the horseshoe bat, *Hipposideros caffer* (Sundevall), living in a cave on the shores of Lake Tanganyika near Nyanza-Lac. Metacyclic forms of the trypanosome were found in the rectum of the cimicid *Stricticimex brevispinosus* Usinger, which I described from that cave. The authors regard this mode of transmission as identical to that of species of *Triatoma* in the transmission of Chagas disease. Unfortunately, the short note gives no details as to the technique or experimental methods used.