2 REVIEW OF LITERATURE

Record: Stephanitis typica (Distant), originally recorded on plantain (Distant, 1903a) from Ceylon, was reported as a minor pest of coconut for the first time in 1915 (Anonymous) from Singapore. Subsequently, Fletcher (1917) from Coimbatore, Corbett (1929) from Malaya and Nirula (1955) from Kerala reported it as a pest on coconut foliage.

Distribution and host plants: The insect has been reported from Ceylon, China, Formosa, Greater Sunda islands, Hongkong, India, Japan, Java, Korea, Malaya, New Guinea, Pakistan, Philippine islands, Singapore, Sumatra and Taiwan. Nineteen different species of plants under 13 genera are recorded as host plants (Table 1).

Description: Distant (1903a, 1910) enumerated the generic and specific characters of the insect. Fletcher (1914, 1916) and Hoffmann (1935) gave short descriptions and Hakk (1963) narrated the morphological characters in greater details.

Life history: Fletcher (1917) gave a brief but illustrated description of late stages of its life history. Hoffmann (1935) gave an incomplete account of the
life history and description of the egg and fourth and fifth instar nymphs of the bug as a pest of banana in Canton.

Role as vector of Coconut Root (wilt) disease: Nagaraj and Menon (1956), who suspected it to be a vector of Coconut Root (wilt) disease, collected the adults from healthy coconut seedlings, fed them on youngest leaf of diseased palms for 24 hours and then liberated them on healthy coconut palms in the field in muslin cloth bags. These inoculated palms showed a higher percentage of infection than the uninoculated control palms. This result was corroborated by Shanta et al (1960). Shanta et al (1964) inoculated coconut seedlings grown in heat sterilized soil contained in reinforced cement concrete tubs placed in an insect proof screen house, with adult S. typica previously allowed to feed on diseased coconut leaf and obtained evidence on the transmissibility of the disease by this insect through the production in the experimental seedlings, flaccid condition of leaflets, diagnostic of Coconut Root (wilt) disease (Radha and Lal, 1972). Joseph et al (1972) conducted studies on vector-pathogen relationship of S. typica and Coconut Root (wilt) disease using cowpea (Vigna sinensis (L.) Savi ex Hassk) as test plant. They reported effective transmission of the disease by groups of ten insects
with an acquisition feed for 2 hours, transmission feed for 16 hours and loss of infectivity after 24 hours. Shanta et al (1960) obtained indirect evidence on the role of *S. typica* as a vector of the disease through slower spread of the disease in palms sprayed with 0.2 per cent DDT to control the lace bug than in unsprayed palms kept as check. Shanta et al (1970) observed that *S. typica* was capable of transmitting Coconut Root (wilt) disease pathogen from oil palm (*Elaeis guineensis* Jacq.) to cowpea.

Control: (a) biological: Hoffmann (1935) reported imago and young ones of a mirid bug in Nanning and several places in its vicinity sucking out completely several instars of *S. typica* in a short period of time, but not the adults of the lace bug and suggested control by these mirids. (b) chemical: Hoffmann (1935) reported that contact spray applied to the underside of banana leaves, thoroughly wetting the nymphs and adults was an effective control measure and that the use of Flit applied with a Flit spray gum proved entirely satisfactory. He also expressed the view that since lace bugs are tiny and gregarious, they could quite easily be destroyed by mashing with a cloth or even with bare hands, a feasible method in small plantings of plantain especially if it was done before the infestation
became general and that if a few leaves on banana plant should become badly attacked, it would be worthwhile to cut them off and destroy them. Holmes (1964), while making recommendation to control Coconut Root (wilt) disease, suggested spraying badly affected palms with an insecticide such as five per cent DDT or Chlordane prior to cutting them, in order to prevent infective lace bugs leaving the foliage. Lever (1969) recommended application of emulsifiable solution of malathion, diazinon or parathion at 1% concentration to control *S. typica*. Mohanasundaram *et al* (1973b) reported cent per cent reduction of the bug on banana leaves 24 hours after spraying 0.1 per cent phosphamidon which had a residual toxicity up to 45 days, or 0.05 per cent fenthion or 0.1 per cent carbaryl.

Besides the references cited above the author attempted description of the adult and made observations on life history (Mathen, 1960), added to the list of host plants (Mathen, 1960; Mathen, Shanta and Kurian, 1972), worked out the seasonal fluctuations in field population and their correlation with meteorological factors (Mathen *et al*, 1968), described the definite pattern of distribution on host plant (coconut) (Mathen *et al* 1969), evolved a method to compute the total population in the field from sample counts on coconut (Mathen *et al* 1973)
recorded, described and gave details of life history and habits of the mirid predator *Stethoconus praefectus* (Distant) (Mathen et al, 1967; Mathen and Kurian, 1972) and evaluated the immediate toxicity of six insecticides against the adults of *S. typica* (Mathen, Sathiamma and Kurian, 1972). The contents of these publications have been utilized while writing chapters 4 to 8 of this thesis.