CONCLUSION

There are 141 wards in Kolkata of which first 100 wards (Ward No. 1 to 100) are malaria prone, and rest 41 (Ward No. 101 to 141) are more-or-less malaria free. The primary reason of this appears to be rapid urbanization, leading to extensive construction work, gardening etc. all ultimately leading to increased number of mosquito dens, favoured by increased water logging in new urban areas.

A positive correlation between larval density, rainfall and incidence of malaria was observed. There is a decline in the larval density in winters, i.e. December-January (5-6 larvae / dip) which extends till the early part of summer (1-3 larvae / dip). An increase occurs immediately after the first shower of rain in Aedes. Hence, there is perennial transmission of malaria in the city.

Changes in the bio-environmental scenario of the city appears to have induced a slight change in the host preference of the vector species. The species shows no special predilection for a particular host feeds on the host available in its habitat. In the early times the species was mainly boviphilic but shows in inclination to feed on humans in late nineties as evident by high Human Blood Index (HBI) in mixed dwellings in the recent past. This may partly be attributed to large-scale removal of cattle sheds from the city, making the human beings more ‘exposed’. The vector terms to feed on man a little after midnight after which it hides in its favourite niche or inaccessible sites in indoors, till oviposition.

The Anthropophilic index of Anopheles stephensi is also analysed in detail in this study.

The water analysis of Anopheles stephensi shows their preference to water with high BOD and low C.O.D. to water with high organic nutrients and more indirect sunlight (than the dark). We have found out their preference is more for water kept in earthen pots.

Two main biological forms of Anopheles stephensi were also found in some other studies in Kolkata in 1946. In the present study ovarian polytene chromosome analysis of
*Anopheles stephensi* gives more morphological details as well as furnishes the future work in this genetic area. Both biological as well as morphological data including length and breadth of ova, egg float, number of ridges etc. are also studied in this work. Those will help in future apart from study models genetic, zoological and epidemiological studies on *Anopheles stephensi* in Kolkata.

The laboratory analysis of *Anopheles stephensi* (type and variety analysis) is first time conducted in Kolkata. We have found out vector potential of both the forms, also first time in this city. *Anopheles stephensi mysorensis* though closely simulate the type form morphologically, is yet to be known to transmit Malaria. There is high suspicious of malaria transmission by *Anopheles stephensi mysorensis* on two solid reasons. They are found in increased number in areas of high malaria incidence.

Secondly, the circumstantial evidence points out the role of *Anopheles stephensi mysorensis* in the low ebb transmission of post monsoon and winter malaria.

The study also had the advantage of being conducted in a Medical Research Institution, fully utilizing modern amenities including genetic techniques. Hence a correlation between entomological findings and temporal aspect of disease load in the city could be deducted more easily.

The vector susceptibility analysis, on the whole may well guide the appropriate authority (CMC, The State Govt. and some NGO’s to choice the proper type of larvicidal agents and optimum timing of spraying to combat the growth of *Anopheles stephensi*.

By and large, in the present study our observation is that malaria cases continue to occur in the post monsoon months, right upto December. This is the time of availability of *Anopheles stephensi mysorensis* in large numbers. All these adds more weight to the argument that *Anopheles stephensi mysorensis* may have big role in the transmission of malaria in Kolkata.