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Ent. Memo No. 8

January 18, 1951

To:- C.S.

From:- H/Entomology

Re: Insect Vectors of B.W. Agents

1. Due to the pressure of other work time has not been available for study of the reports of wartime work on the a/m subject. Therefore the following notes have been prepared largely from memory.
2. The objective appears to be to have S.E.S. reenter, this field of work, utilizing to best advantage our present resources of manpower and equipment; with eventual termination of a low priority project if this is deemed advisable to provide any additional manpower required for the a/m work. The various possibilities have been discussed within the last few days.
3. Since our previous experience in this field was mainly confined to the role of Musca domestica (housefly) in transmitting Salmonella infections a starting point could be made in going over this work and repeating the final trials which were subject to some criticism because of the manner in which they were carried out.
4. The a/m trials were carried out only after very extensive laboratory and field tests were made to develop a glass bomb(contained) bait which contained
  - (a) an attractant (for M. domestica)
  - (b) the organism.
 The bomb finally used is not considered practical and I am quite positive that the R.C.A.F. would not accept it in it's 1945 state of development.
5. In addition to this work (para 4) attempts were made to develop a large bomb to carry large numbers of infected adult houseflies. This does not appear to have much promise.
6. A logical sequence of work would seem to be:
  - (a) Laboratory research on the development of a mixture which would be:
    - (i) Satisfactory media for growth of a virulent organism.
    - (ii) Satisfactory media for growth and development of a vector for the organism.
    - (iii) Highly attractive to wild populations of the vector.
 In other words development of a bomb charging which could be innoculated at the proper time with both the egg or larval stage of the insect vector and the agent, and at the same time would prove to be highly attractive to native wild populations of the vector and thereby increase the incidence of transmission.
  - (b) Development of a envelope and container for the charging which would be
    - (i) acceptable to the R.C.A.F.
    - (ii) inconspicuous in enemy territory.
    - (iii) gauged to disintegrate at a time which would coincide with emergence of the adult vector from the bomb charging. Possibly some type of hygroscopic gelatinous plug could be developed which could be modified to disintegrate over a predetermined time interval.
7. The work need not necessarily be confined to houseflies and the agent mentioned above. We have been considering the possibility of utilizing Phormia spp. of blowflies. These seem more robust and may lend themselves

more readily to the use suggested above. The range of agents could possibly be extended but initial development should be confined to work with a simulant as Serratia marcescens which would be safe to handle without elaborate precautions and would make it possible to carry on the work without the services of a highly trained bacteriologist.

8. The role of deerfly and ticks in transmitting tularimea has also been considered but at present this seems to pose too many problems for effective prosecution here.

9. The role of fleas in transmitting plague and the transmission by mosquitoes of encaphalitis virus should remain with Dr. G. B. Reed's group unless field trials are required here.

10. From the defence standpoint high priority should be assigned to research on means of controlling DDT resistant flies which could be used as vectors of B.W. agents.

11. I notice from the minutes of the Tripartite Conference that the wording of the original recommendation concerning this subject has been changed to include the U.S.A. I would recommend that a very early date a meeting be held of all interested parties in Canada and the U.S.A. to review work completed and discuss work projected in both countries.

Respectfully submitted,



H. Hurtig  
H/Entomology Section

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