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The Secretary of the Expert Committee on Malaria
has the honour to communicate hereunder
the following note:

MALARIA RESEARCH IN THE SOUTH-WEST PACIFIC

Malaria research in progress
South-West Pacific (excluding Netherlands New Guinea)

forwarded by Prof. E. FORD and prepared by Dr. R.H. BLACK
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(Items 3.1 and 3.2 of the Provisional Agenda)

1. TERRITORY OF NEW GUINEA - MINJ

At Minj in the Western Highlands is being conducted the Wahgi Valley Pilot Drainage Project. The valley is 5,000 feet above sea level and malaria is present in the valley at meso- to hyperendemic levels. The proven vectors are Anopheles punctulatus and A. farauti. These anophelines breed in seepages, etc. on the flat valley floor. The presence of malaria has driven the people to the mountain slopes. The objects of the control project are to determine if drainage will control the malaria and reclaim the land for agriculture, and if the inhabitants of the area will return to the valley and maintain the drains. In charge is Mr. S.H. Christian of the Public-Health Department.

2. PAPUA-MEKEO DISTRICT

Residual spraying with DDT is being done with enthusiasm rather than science but the officer in charge has sold the idea of residual spraying to the rather conservative Mekeo people. In charge is Dr. Nespor of the Public-Health Department.

3. PAPUA-TROBRIAND ISLANDS

(i) Totaquine suppression experiment just completed. Totaquine at an adult daily dose of 10 g per day was unable to suppress falciparum

infections. Much information was obtained on the behaviour of villagers who had volunteered to co-operate with the experiment. The totaquine was prepared from cinchona bark grown in the Highlands of New Guinea.

(ii) Larvicidal control project using DDT in Malariol. The object of this experiment is to determine how much supervision villagers need to conduct control measures in their own village.

(iii) DDT residual spraying: this is being started on one of the islands of the group with intention to spread to the other islands. The preliminary survey has been done and possibly by now the first spraying. DDT wettable powder is to be used - the first consignment was quite unsuitable and delayed the commencement of this project. A. farauti has been found resting indoors in the daytime in this area, sometimes in considerable numbers.

Dr. R.H. Black of the School of Public Health and Tropical Medicine, Sydney, is in charge of this work which is being done at the request of the Department of Public Health of Papua-New Guinea.

4. PAPUA-NEW GUINEA

Annual visits by Dr. R.H. Black for supervision of experimental work includes also survey work, observations on anopheline behaviour, etc.

5. SOUTH PACIFIC

Investigation of factors determining the eastern limit of malaria distribution in the South Pacific (170°E). This project has just been completed and was in the charge of Flight Lieutenant M. Laird of the RNZAF.

6. QUEENSLAND

Investigation of malaria in Torres Strait by Dr. M.J. Mackerras of the Queensland Institute of Medical Research and Dr. E.N. Marks of the Queensland University.

7. NEW HEBRIDES

Malaria survey work by Dr. A.R. Mills, British Service Medical Officer, mainly to determine the distribution and degree of endemic malaria in the group.

SPECIAL PROBLEMS REQUIRING INVESTIGATION

1. Main problem in the behaviour of A. punctulatus and A. farauti in connexion with residual spraying.

The latest evidence available from observations on mosquito behaviour in Papua-New Guinea and experimental work in Netherlands New Guinea suggests that a residual spray pilot project should be commenced as soon as possible in Papua-New Guinea and this is being arranged, using dieldrin to complement the DDT pilot project in Netherlands New Guinea. It should be mentioned that residual spraying with DDT has been in use for several years as the method of control of malaria in the New Hebrides.

2. Determination of the distribution of malaria, especially in the Highlands of Papua-New Guinea and elucidation of the factors responsible for its presence or absence in an area.

There is no complete map of malaria in the area and this knowledge will be required for the extension of malaria control projects.

3. Investigation of malaria as a cause of infant mortality.

The consensus of opinion is that this disease contributes largely to the high infant mortality rate both directly and indirectly but there is little or no factual evidence to support these opinions.

4. In Papua-New Guinea labour is recruited from over a large area for work on plantations, etc. It has been suggested that if labourers are placed on suppressive drugs over a period of some years their immunity or tolerance may be seriously interfered with so that on their return to their malarious villages they may suffer severely from malaria. It is well realized by employers of labour that modern suppressives are effective in securing a more efficient labour force. The problem is to determine whether malaria suppressives should be given to labourers recruited from malarious areas.

5. Determination of the degree and sites of endemic malaria in Northern Australia.

A survey of the Cape York, Gulf of Carpentaria and coastal Northern Territory is required to determine the foci of endemic malaria. In connexion with this, it has not yet been discovered which of the anophelines of the

Northern Territory of Australia is the main malarial vector.

6. Recently Black has reported hepatomegaly in the south-west Pacific due to malaria. It has been shown that the incidence of palpable liver and the size of the liver varies directly with the amount of malaria in the community and in a community with a high degree of malarial endemicity the size of the liver was found to be significantly related to the size of the spleen. Further work on the pathogenesis of liver enlargement in malaria is necessary.

7. Finally, there is the administrative problem of the most suitable malaria control service for these countries where size of the area and the nature of the terrain present considerable geographical as well as financial difficulties.