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East Africa High Commission:
(6) East Africa Malaria Unit

Washington, D.C.
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Mr. Walter S. Rogers
Institute of Current World Affairs
522 Fifth Avenue
New York 36, New York

Dear Mr. Rogers:

Malaria, which is hyperendemic throughout the general inhabitable area, is recognized as a disease having severe economic implications in all three East African mainland territories and Zanzibar. Many working days are lost and the large volume of treatment involved is expensive. There is considerable uncertainty as to how to attack the problem, since it seems doubtful that means of eradication successfully tried elsewhere can be applied with optimism against the more persistent vectors in East Africa. The African communities affected are largely unable to afford the large scale use of newer insecticides. More importantly still, entomological and ecological knowledge of each particular species of vector must be obtained before eradication can be economically initiated. In East Africa this knowledge is not complete, and its acquisition remains a basic aim of the East Africa Malaria Unit. Another priority objective is to complete the training of staff, especially Africans, for control work under territorial departments. A third goal is to provide advisory services including specialist advice on vector control, to make available up to date information on recent advances, and to stimulate exchanges of information regarding local areas and vector problems within East Africa.

The idea of an interterritorial malaria unit is said to have originated in Kenya in 1946, but the practical inception of the Unit was under the aegis of the High Commission, after receipt of advice coming out of the annual meetings of Directors of Medical Services. Funds were provided at the end of 1949, and the administration of the Unit was formally assumed by the High Commission on 1 January 1950. During leave in England from January to August 1950 the Director recruited staff, selected equipment, guided the training of staff before departure from UK, and discussed projected activities with authorities. The site and buildings of the old agricultural Institute at Amani, Tanganyika, provided an economical base which the Malaria Unit could share with the Tanganyika Malaria Unit; in mid-1950 construction of temporary housing at Muheza was halted in order to allow the shift, and the Tanganyika Government gave its final approval at the end of the year. The Malaria Unit was physically moved to a permanent headquarters at Amani early in 1951, Muheza installations being lowered to the status of a field station. Work during 1949, with a single malariologist supported by no additional senior staff was confined to limited planning, training, and advisory services with some investigations into intensities and distribution of malaria. The years 1950 and 1951 continued to be occuried mainly with problems of preparation, building and organizing, and other operations were limited.

The Malaria Unit is a medical research agency administered by the High Commission, answerable through the Administrator in his ex officio role as one of the four Principal Executive Officers. The headquarters is housed on grounds shared with the Tanganyika Malaria Unit at Amani, Tanganyika at an altitude of 3,000 feet, with Muheza, 20 miles away at 600 feet serving as a field station. The maintenance of the Amani station is shared between the High Commission and the Tanganyika Government.

By the end of 1952 personnel had been engaged including the Director, who is a Malariologist, one entomologist, two European Malaria Field Officers, a Malaria Engineer, a Secretary, and four African Malaria Assistants. Though the staff in 1951 was said to be "inadequate" for the job, it represented the full authorized complement.

The plant at the Amani headquarters, vacated by a comparatively large research agency, affords generous space. An office block is shared with Tanganyika Malaria Unit, seven European houses were available before EAAFRO had fully shifted to Muguga, and a large amount of housing for Africans exists. Independent electric and gas supply was already installed. A library building and three laboratory buildings, one of which included a teaching laboratory, were among those handed over. In 1951 the laboratory equipment was made ready, so that most of the necessary laboratory work could be begun. An insectary was set up and a colony of Anopheles gambiae established.

Expenditures of the Malaria Unit in 1950 were £10,513, including recurrent expenses of £4,855 and extraordinary costs of £5,658, and revenue was £88 in rents. Under C.D.&W. Schemes R.355 and D. 1219, 100 percent of capital expenditure and 50 percent of net recurrent costs were paid through C.D.&W. funds. The other half of recurrent expenditures was provided by equal contributions from Kenya, Uganda and Tanganyika (£1,164 each in 1950) and a small contribution from Zanzibar and British Somaliland (£146 each in 1950).

As mentioned above, the intended functions of the organisation are threefold. First, the knowledge of the habits and life cycles of the malarial vectors of East Africa, Anopheles gambiae and funestus, must be brought, partly through "basic" research, to a level approaching that of anopheline species of other tropical areas where the newer methods of eradication have been successfully applied, in order to determine effective methods of control in East Africa. The careful training of European, and especially African, malaria control staff, though apart from research, is regarded as essential, and pressing in terms of time because it is essential for any application of research results. The development of expert advice and its provision to the East African governments for specific projects of vector control, along with collection, collation and distribution of malarial control information the world over, comprises a third objective. Though admittedly beyond present staff resources, the three aims indicate the direction of the Unit's efforts. The responsibility of the Unit extends into Kenya, Uganda, Tanganyika, Zanzibar and British Somaliland.

Most of the research work through 1952 was concerned with detailed investigations of certain aspects of the behaviour of A. gambiae and A. funestus with a view to assessing the possibilities of controlling them

in certain localities by the use of residual insecticides applied in or on houses or huts. A study was made of the resting places of mosquitoes. It was found that over 90 percent of the females that have fed in houses remain in the house for at least the first day, after which A. gambiae has a greater tendency to leave than A. funestus, and that most of those who have already fed and gone outside to lay their eggs return again the same night to the houses to feed. No evidence of activity away from man was found. The investigations revealed nothing to suggest that control by residual insecticides would fail to interrupt transmission by gambiae. The explanation for failure would have to be sought in some other aspect of the behavior or response to the insecticides of this species.

A study dealt with the relative cycles of feeding and egg laying, the duration of the gonotrophic cycle of both species. It was found that above 74° F. gambiae has a two-day cycle, and above 78° F. funestus does also. The Unit has worked out a method of ascertaining the total mosquito population of an area. It has also studied the age composition of a mosquito population which must be known to determine the effect on survival of any form of attack.

In April-May of 1951, in collaboration with the Colonial Insecticides Research Unit and the Tanganyika Malaria Unit, an experiment in DDT spraying by aircraft was carried out at Dar es Salaam. Rains, an injury to the pilot of the aircraft, and "an unheralded alteration ... of long established municipal catching stations"[1](possibly a lack of coordination between concerned anti-malarial agencies) reduced the efficacy of spraying and delayed assessment of results. No conclusive results were obtained. The Director also supervised a project testing use of residual insecticides undertaken in 1951 at Arusha Chini near Moshi by Tanganyika authorities.

The Unit, mainly in collaboration with the territorial Medical Departments and the E.A. Medical Survey, has carried out some mapping of malaria incidence in East Africa. Additions to knowledge of geographic dispositions of endemicity were said to have been effected through a rapid survey of malaria hazards along part of the route of the proposed Rhodesia-Tanganyika rail link.

Plans were considered for projects assessing more accurately the true economic effects of hyperendemic malaria,and at the WHO conference on malaria at Kampala in 1950 it was concluded that such assessment could only be based upon eradication attempts under controlled conditions in one of the most endemic areas. A scheme for control by use of residual insecticides was drawn up, to be conducted by the Malaria Unit in association with the Colonial Insecticide Unit. The project was approved by the Directors of Medical Services and endorsed by the Colonial Medical Research Committee. During 1951 the East African Governments were asked to contribute to the project, to supplement contingent C.D.&W. funds, but the proposal had not been finally approved by the end of 1951. In 1952 this long-delayed study of hyperendemic malaria was expected to begin in 1953 in the Pare District of Tanganyika and in Taveta in Kenya.

In 1951 specific training operations included one month courses for thirty Africans from the three territories and Somaliland, in mosquito anatomy, life history, and identification of species, control and survey methods. In 1952 two two-week courses were held for 21 Europeans and two

five-week courses were held for 33 Africans. As a graphic training aid, a pictorial museum has been prepared. Information was also disseminated through three bulletins and a popular guide on malaria prepared for the Tanganyika Medical Department. The bulletins dealt with the treatment of malaria (for medical officers), with larvicides (for health workers), and with insecticides and their application. Numerous requests for information on the disease and its control, from both lay and professional sources, were answered.

Four out of five of the contributing governments consulted with the Director on such matters as the effect of fish farming on malaria, control of mosquitoes at aerodromes, the local usefulness of residual insecticides, the planning of permanent works for the reduction of anopheline breeding. Three East African territories were visited both in 1949 and 1950, and special advisory visits were made to Lindi, Mombasa and Nairobi in 1951. British Somaliland was visited during a severe malaria epidemic in 1951 and an investigation was made during 1952 to determine the genesis of such epidemics in a waterless country after the rains. Searches resulted in the discovery of larvae in wells in the dry season which explained the survival of the species. Further searches early in the rains in areas waterless during the dry season revealed larvae and mosquitoes proving that adults had taken less than two weeks to travel 40 miles from the wells.

In addition to advising the territorial governments, the Unit collaborated with them in malaria survey and mapping, and the work of establishing the colony of Anopheles gambiae in the insectary at Amani was shared by an officer of the Tanganyika Malaria Unit. The air spraying at Dar es Salaam was jointly executed with the Tanganyika unit and with Colonial Insecticide Research, and the Malaria Unit collaborated with the Tanganyika unit in the experiment at Arusha Chini. Reciprocal visits and discussions assured coordination and minimized duplication of effort among the officers of the Unit, the Medical Survey, the Filariasis Research Unit, and the Colonial Insecticide Research Unit.

The Unit carries on an increasing interchange of information outside the contributive territories. British and French West Africa, Central Africa, Madagascar and Mauritius are recipricants. International contacts were reenforced by the Director's attenance at the meeting of the Expert Committee on Malaria of WHO in August 1949 and at the WHO Malaria Conference at Kampala the following year, where he submitted a Review of Hyperendemic Malaria, subsequently reported, in the Director's own writing to have "provided the starting point of the most acute discussions."[2] In 1952 visitors at Amani included persons from the London School of Tropical Medicine, WHO, and the Institute of Medical Research, Kuala Lumpur.

Sincerely,

John B. George

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P.S.

Footnotes

1. East Africa High Commission, East African Malaria Unit Annual Report 1951, p. 8. (Writer's parentheses)

2. East Africa High Commission, East African Malaria Unit Annual Report 1950, p. 1.

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