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FILARIASIS CONTROL PROJECT IN WESTERN SAMOA

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From the time Captain Cook reported after his third voyage, from 1776 to 1780, cases of elephantiasis among the peoples of the South Pacific islands have been mentioned by various visitors. Manson, in 1896, reported in the British Medical Journal the presence of microfilaria in the blood of Samoans.

MUMU' fever, as the Samoans called filariasis, has been with the peoples of the South Pacific for centuries. This dreadful disease is caused by a tiny worm, about one to three inches long, called *Wuchereria bancrofti*. Unlike other worms in the human body, it does not live in the intestines, but in the lymphatic tubes in the limbs. These lymphatic tubes are meant for drainage of a fluid, called lymph, from the tissues of the limbs.

The adult filaria worms inhabit these tubes and cause destruction and blockages. The stagnant lymph will swell the limbs, and actual circumferential growth of the limbs occurs later. This stage is the final stage of the disease and it is when elephantiasis of the limb is seen. It may take many years to eventuate.

Not all people who have worms in their limbs get elephantiasis. Many of them may not show any signs or symptoms and the person may not be aware that the filaria worms are present in his body. Some get occasional fever attacks accompanied by painful and reddened limbs, and enlarged glands at the groin or armpits. Later, some may suffer hydrocoele or some chyluria (a condition where the patient passes milky urine). Only a

few end up with elephantiasis, a condition which is not curable, unless by drastic surgery.

But nearly all those who have the filaria worms can be discovered by blood examinations. In the blood of such persons with filaria worms, small worms called microfilaria are seen. In a drop of blood there may be a few or hundreds of baby worms crawling about like snakes. Such persons are called microfilaria-positive persons.

When certain species of mosquitoes bite man, they suck the microfilaria into their bodies, and certain developments take place. After these developments, and when the infected mosquito

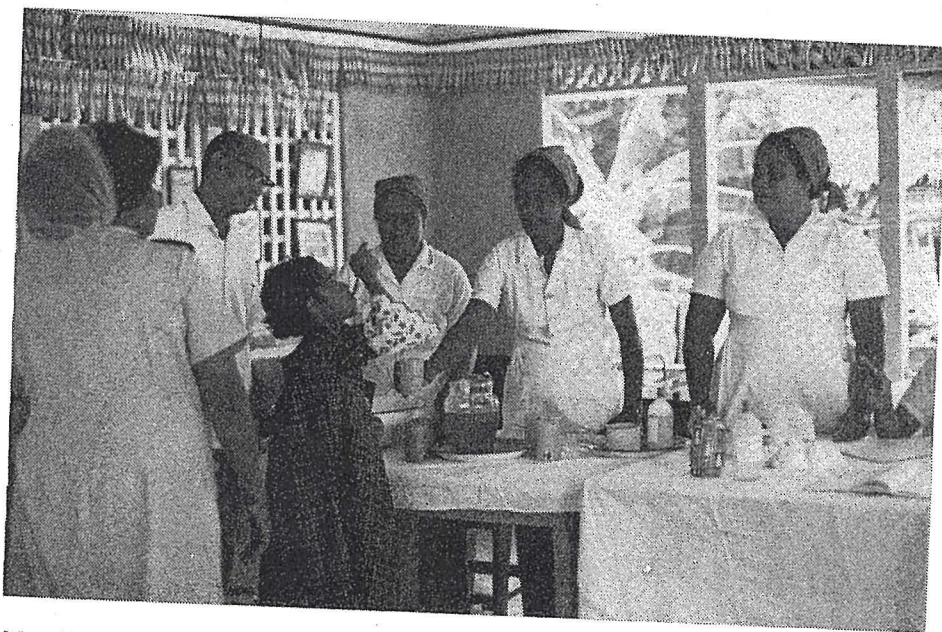
bites another person, that person will be infected with filariasis.

If we could kill the filaria worms in the lymphatics or eliminate the small worms from the blood of an infected person, then the disease will not be transmitted to other people. Also, if we could eliminate the mosquito species that transmit the disease, then transmission will not occur. In a filariasis control programme, methods used are aimed at achieving these objectives: that is, to eliminate the worm or to control the mosquitoes that transmit the disease.

Filariasis Control Project

The filariasis control project in Western Samoa was established in July 1965, following a tripartite agreement between the Government of Western Samoa, the World Health Organization, and the United Nations Children's Fund.

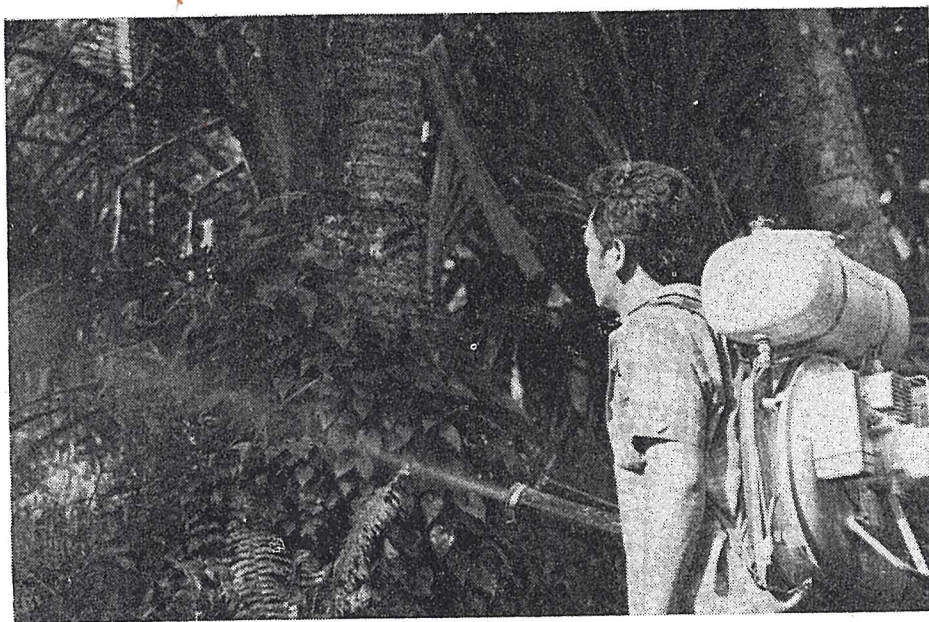
The objectives of the project were to determine feasible methods for controlling filariasis in Western Samoa and to launch a nation-wide control programme based on such methods.



Monthly drug administration by the Village Drug Distribution Team.

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The authors have purposely adopted a simple style in order to explain a scientific problem to lay readers.



Power spraying with insecticides during field trials on Pandanus trees.

It was agreed to implement a mass drug administration programme, by using a filaricidal drug 'diethylcarbamazine' given to everyone over one year of age, the dose depending on their body weight. The drug was given in divided doses, first on a weekly basis and then monthly. The first round of the drug was given in 1965, for thirteen and a half months in 18 separate doses.

The results, after the first round, showed a dramatic reduction of infection rate in the population from 19.06% positive for microfilaria in 1965, before the control measures to around 1%. (Infection rates in mosquitoes dropped from 2.5% to 0.082%.)

This reduction of infection rate in the human population was very encouraging but if it was left as it was, the rate could gradually rise again. This was proved by a survey in 1969 which showed that the infection rate stood at 2.84%, although still very much lower than before control measures.

To keep a check on this re-escalation of the infection rate and if possible to reduce the rate still further, a second round of the mass drug administration campaign was launched in January 1971. This second round was planned to cover the whole country, for everyone above the age of one year, one dose each month for one year, each dose depending on the consumer's body weight.

To administer the drug to everyone in the country was no small feat. Who

would take a drug when they were not obviously suffering from the disease? This had to be achieved by an intensive public information programme through the radio and other news media.

The success of such a programme lay not only on health service personnel, but also on the public itself. On realizing the importance of the debilitating disease and how a control programme could protect the coming generation from it, the mothers of the new generation were willing to make a number of sacrifices to help in the nation-wide control programme.

Thus, Village Women's Committees in each and every village volunteered to form village drug distribution teams and to carry out the instruction of the health authorities in distributing drugs to the people.

Each month the village women's team administered to everybody in the village filariasis control tablets issued by the control project and saw to it that they were taken. In some villages, fines were levied on those who missed one of their monthly doses.

At first a few people had reactions after taking the drug and this caused some alarm in certain areas. But as soon as people realized that the reaction was transient and due to dead or dying filarial worms in the body, they soon resumed their drug intake. After all, the reaction was a sure sign of destruction of the parasite by the filarial drug.

During the first round of mass drug administration, over 95% of the popu-

lation took the drug. It was expected to achieve a better coverage during the second round of the mass drug campaign.

The control project is staffed by two medical officers and paramedical staff, and is advised by a WHO Epidemiologist and a WHO Scientist/Entomologist. The project headquarters is situated in Apia and co-ordinates all the women's drug distribution teams throughout the country, through the District Medical Officers and District Nurses—the immediate supervisors of the teams.

Research on mosquito control is being carried out at the filariasis control laboratory in Apia. The mosquito species that transmit the disease (*Aedes polynesiensis*) is carefully studied in its behaviour and habits and its susceptibility to insecticides.

The success of the campaign can be measured by examining the blood of the people from time to time. But the success will be apparent a decade from now, when the new generation will ask: 'What is filariasis? We haven't seen anyone with this disease?'

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Book Review

FAO. Food and Nutrition Education in the Primary School. Rome, 1972

This Practical Guide for the introduction of Food and Nutrition Education in the Primary School has just been published. It is available in English, French and Spanish. Price: \$US2.50.

The Guide describes the importance of Nutrition Education in the Primary School, the various stages for introducing it into the curriculum, the instruments necessary to carry it out and the simplest forms of evaluating the results of such education within the school framework.

The aim of the Guide is to provide guidance for Nutritionists, and especially for those working in Applied Nutrition Programmes in various parts of the world, on one of the major aspects of these programmes. Furthermore, this work gives data on practical results obtained in various countries where Food and Nutrition Education has already been introduced at Primary School level. There is a description of "soil-less agriculture" which is practised successfully by Tahiti school-children; this activity is most useful both economically and as a teaching medium. Mention is made also of agricultural teaching cards used in French Polynesia as teaching material for the promotion of both production and consumption of high nutritive value aliments.

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