FILARIASIS AND ELEPHANTIASIS IN FIJI. ITS CAUSE AND HOW TO ERADICATE IT.

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FIRST of all let me say it would appear to be quite clear that the various sicknesses now grouped under the heading of filariasis were disease manifestations well known to the Fijian people many hundreds of years ago. The Fijian vocabulary would certainly tend to indicate this:

For example we have the general term *waqaqa* used to cover all manifestations of the disease, *ceke* means swollen testicles caused by *waqaqa*; *qala ceke* meaning elephantiasis of the testes and *qala qaqa* meaning Elephantoid Scrotum.

The word *tauna* means *waqaqa* swelling of the legs and arms. The terms *yava kasi* and *liga kasi* refer to deep seated abscesses in leg and arm respectively and would apparently indicate that filarial abscesses were meant. Altogether therefore it would appear according to old Fijian language records that the Fijian people had defined for themselves the various mani festations we now know to be caused by the filarial worm, and that from quite ancient days the disease was to them a sickness common in all its various manifestations.

Opinion as to the growth or spread of filariasis and from whence can only be conjectural but strong indications would tend to show that its spread has been from east to west. Authoritative medical reports do not go back very far, and such as they are, would seem to have been incited primarily or mainly by the outward manifestation of elephantiasis. Lau is first mentioned and then Lomaiviti and Vanua Levu.

When I commenced my work here I was advized by one medical authority that I would find the incidence of the disease would be of a trivial nature on the south side of Viti Levu; that it would be insignificant on the west coast, if found at all: and that the disease was common only in Lau and Vanua Levu. Another medical opinion proffered me was that I would not find the aggregate microfilaria (m/f) rate (that is the average rate over the whole group) to be in excess of 4 per cent.

These opinions have turned out to be very much off the mark. The south side of Viti Levu produced a m/f rate of 28 per cent with a due proportion of elephantiasis, against the group average rate of 20 per cent, and pilot tests on the west side have so far produced a m/f rate of 26·8 per cent against the group average of 20 per cent.

To-day we of course realize that the growth of the disease within a community is of an insidious nature, its earliest manifestation in the main being subclinical in character with no outward physical indication or apparent initial disability to the infested, so that unless a wide series of blood tests is undertaken it is impossible to form any reliable opinion as to the extent of the spread of infection. The present campaign survey is the first of its kind in these islands.

Moreover the misapprehension of medical authority as to the actual spread of the disease is understandable. In past years, at least, the Fijian people were not imbued with a great deal of faith in the *vale ni mate* nor in *na vei ira na vuniwai lako tani mai*, and anyhow they had their own methods—their traditional way of dealing with a misfortune it was the fate of a large number of their people to suffer. Even in present times I have seen persons very sick and pained with filarial lymphangitis, but they have not asked for the help of the doctor. They just grin and bear it—because they but suffer something that is to them a disease manifestation common to many in their midst.

In my opinion the spread of the disease throughout the group has been unconsciously caused by the Fijian propensity to travel from island to island—they are great travellers—and since the intermediary host *na namu oriori vulavula* is to be found on every island (although of course in varying density) the spread of infection by the human host was simply inevitable.

I am not prepared to believe that the spread of the mosquito carrier has been caused or even facilitated by human agency. Its breeding, flight and shelter habits appear to me to be an effective bar to its easy or possible spread from island to island in ships—large or small. That would be and is quite possible with Aedes Aegypti but not in the case of Pseudo-scutellaris. I think the insect has been breeding in the islands from time immemorial.

THE CAUSE.

The cause of Filariasis in Fiji is that ubiquitous insect the mosquito A.pseudo-scutellaris—rather should I say the cause to be the freedom granted, and facilities, through carelessness, provided to that insect, for the breeding of its kind. It is now of course known that a mosquito is the intermediary host of the filarial worm, that so far as Fiji is concerned that particular mosquito is *Na namu oriori vulavula*, and that the disease cannot be spread in any other way than by the bite of a mosquito.

When we began our work we quickly found that the Fijian people had opinions of their own as to how the filarial diseases were contracted and could be spread. So far as they were concerned the disease in its various manifestations was " as old as the hills ". They also knew *na namu* but it took time to make them realize there are in Fiji 16 *mataqali ni namu* and that one kind only was capable of causing *waqaqa*. We heard for example among other things, that the milk of an unmatured or over ripe coconut could cause *waqaqa*. One old gentleman told me he had been careful to keep clear of *waqaqa* by refusing to get wet with the morning dew—*he* knew the cause of it—but all the same when his blood was tested he proved to have a fair m/f infestation. Another old gentleman with a big leg stated that the disease passed direct from person to person, like any other disease (clearly he did not believe it was the mosquito)—and then he went on to say he could " wish " an elephantiasis on to an enemy by merely urinating on that enemy's door-step.

I have found the Fijian to be naturally a very polite person and of course he does not bluntly tell you he has some difficulty in swallowing the story about the mosquito's sole responsibility for the spread of filariasis. At first then you may think he understands and because of that understanding believes you. The fact of the matter is it takes time to create a true understanding, and even then when you think they at last understand and you have got a community to *savasava vinaka ka maroroi savasava na koro kei na i bili ni koro*—the result will probably impress them not with the thought that they are now safe from the disease-carrying mosquito, but that they are glad that now they have no flies to torment them.

To come right to the root of the whole trouble one may say that the cause of the *waqaqa* spread in Fiji is due to the condition of the koros and the outskirts thereof. Had the conditions of the koros faithfully complied with the Regulations in force for many years past there would now be considerably less *waqaqa* in Fiji than does exist to-day. I say to you earnstly, that in a koro which is clean, and clear of long grasses and bush, and has its outskirts also clean and clear, where rubbish such as old tins, bottles and coconut shells in which the mosquito breeds are not allowed to lie about, but disposed of in a hygienic manner—buried or burned; then, in such a koro the spread of *waqaqa* will cease and eventual eradication may be expected

OUR PLAN TO CONTROL THE DISESAE.

The Campaign which began in 1944 is primarily an educational drive in an attempt to make clear to the people the truth about the cause of the disease, and how they themselves can, with a simple hygienic measure, control and eventually eradicate it. Incidently it was also determined to ascertain as closely as possible the actual extent of its hold among the people of Fiji.

It was believed that knowledge of the truth would win the co-operation of the people, and that co-operation, an essential factor if success was to be attained—would lead the people to that change in their way of life needful if the disease was to be eradicated. That change being from *sa rauta vinaka*, their way of interpreting the minimum requirements of health measures as laid down by Regulation, to a whole-hearted desire to be satisfied with nothing less than *Vinaka* for the sake of their health, and the well-being of their children.

That is of course a big change and it will mean for the people, at first, some effort, but an effort which will cease to resemble a task once the benefits are realized and enjoyed.

These then are the points it is necessary to make clear to the Fijian people

(i) That the campaign is not an attempt to destroy all the mosquitoes in Fiji

(ii) That in order to stamp out *waqaqa* it is not necessary to do this—even if it were possible to do so.

(iii) That there are many types of mosquitoes in Fiji.

(iv) That only one of those types of mosquitoes is responsible for the spread of *waqaqa* in Fiji—namely pseudo-scutellaris—*na namu oriori vulavula.*

(v) That the habits of this insect have been studied, are now known and its possible flight range is very short—less than 150 paces from its breeding place.

(vi) To stamp out *waqaqa* it is only necessary to prevent *na namu oriori vulavula* from breeding and sheltering within and close round the koro.

(vii) That the disease *waqaqa* is spread by the white-striped mosquito and not by any other means or manner and

(viii) that only by their own efforts of clearing and cleanliness in, and for 100 paces all round koros (and this a continuous effort—say koro cleaned once a week and the outskirts once a month) can they, the people of Fiji, hope finally to eradicate *waqaqa* from their midst.

Our method then to achieve our end is to train men from the various Yasana in (*a*) a knowledge of the mosquito (all mosquito types in Fiji)—the life cycle and the varying habits of each (*b*) the disease cycle and the life cycle of the filarial worm and finally (*c*) the necessary steps to be taken in order to control and eventually eradicate the disease by controlling the mosquito.

With this knowledge they are returned to their Province as a team of *Daurai Namu*. The initial work of the team is to make a larval survey of each koro, a blood survey of the people of each koro and tender to the turaga-ni-koro and people advice as to how they can control the disease. This work completed, each unit of the team is allotted an area in his Yasana within which he must make continuous routine inspections in order to encourage the people in the drive for hygiene. Reports on every koro are sent direct to the Roko and the resident A.M.P. of the area. *Na Daurai Namu*

are taught that they are the eyes of the Roko so that the Roko may know continuously all about the condition of the various koro in his Province.

The Campaign has met with a certain amount of success but the desired change is slow in making itself manifest. Roughly 35 per cent of the koros are still marked *Ca.* The people of these koros have not yet any understanding of the purpose of our work or what hygiene means or could mean to them. Their condition does not even conform to the minimum insisted upon under existing Regulations referring to health matters. Approximately 35 per cent of the koros are in the condition of *sa rauta vinaka* but from a hygienic point of view just not good enough. The other 30 per cent are either *vinaka* or *daumaka* and in that 30 per cent we find our encouragement. What they have done and are doing the others must be taught to do willingly.

Finally, is it important, or of a material matter to the Fijian people that the disease be eradicated? This is what medical authority has to say about filariasis: *Annual Medical Report* 1932 " Filariasis is very prevalent in certain parts. It is without doubt one of the chief causes of invaliding and morbidity among the native races. It is to be hoped that some definite cure will be discovered as at present little can be done for the disease ". *Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases* (1945) at page 1298: " Hargrave reported that Filariasis in American Samoa probably causes greater damage than any other disease by reason of the disabling effect and the undermining of the general health which may predispose to other infections ". Phelps in American Samoa reported filariasis as the third cause of death in frequency, the first being tuberculosis and the second pneumonia.

With this knowledge there is a clear call, to all those who can assist, to do their best to eradicate the disease.