

4. The Pulenuu of each village shall immediately report all cases of yaws coming under his notice to the Resident Commissioner, Savai'i, or the Secretary of Native Affairs, Apia.

5. No child suffering from yaws shall be allowed to travel from its village to any other village, except for the purpose of being treated by a doctor.

6. No child suffering from yaws shall be allowed to enter or to remain in any other village than the one in which it usually lives, unless for the purpose of visiting a doctor.

7. The Samoan methods of treating yaws are hereby strictly forbidden.

8. Every child under the age of ten years shall be produced for inspection by a Medical Officer when required.

9. The parents of every child brought to a Medical Officer for treatment for yaws shall see that the child undergoes the full course of treatment prescribed by the Medical Officer.

10. No parent shall refuse to allow treatment to be given to any child suffering from yaws when a doctor is in the district.

11. Any person refusing or neglecting to obey the provisions of these regulations shall be liable to a penalty of £1 for every such offence.

During the first year of the campaign 32,336 injections were given. The work was recommenced in April, 1924, and during the four months ending 30th July 12,000 treatments were given. The whole of Samoa will have been completed by the middle of October, when the hookworm campaign will be recommenced.

A yaws unit consists of a European doctor with two or three Native assistants. They take out a supply of a few thousand doses of novarsenobillon, a sufficient quantity of distilled water, syringes, and a sterilizing outfit. The dose given is 0.6 gramme for an adult male and 0.5 gramme for an adult female, and children in proportion. An area which will occupy a unit for five treatment days is selected. On the first round the doctor examines all cases offering themselves for treatment, selecting those showing any signs or symptoms of yaws, and gives them their first injection, making a careful list of the name and village. Saturday is spent in retracing his steps to the starting-point of the week. The second and third weeks are spent in giving second and third injections to those previously treated. On the second and third occasions the treatments diminish in number, as the first injections in many cases clear up the obvious lesions and the Native can see no reason for further treatment. The matter of more than one treatment was not pressed in the first round of Samoa, as the campaign was intended to be one of education as much as one of treatment. With the new regulations a complete course of three injections is being insisted upon. On the first round it took fifteen months to complete the whole population. The second round, with the improvement shown by the first treatments, will be completed in six months. In treating the whole population it was found that the average dose given was 0.45 grammes. On the first round many young children were not brought forward, as the Samoan considered that the injection would only "drive in the disease." On the second round it is found that parents bring their children forward freely.

4. *Present Hookworm Survey.*

This work was rather limited in Samoa because of the short stay occupied by the trips of inspection, also by the fact that Dr. Buxton, of the London School of Tropical Medicine, had planned to make such surveys a part of his programme.

We had the opportunity of seeing the new Clayton Lane direct centrifuge flotation method of diagnosing hookworm-ova. Briefly, a definite amount of faeces, about 1 gramme, is measured by a small metal ring grasped by long-handled forceps, and pressed repeatedly into different portions of the specimen. This, ring and all, is dropped into a centrifuge tube, gently shaken with water, the ring is removed, and the tube centrifuged a thousand times a minute for one minute. The water is decanted. The tube is refilled with saturated sodium-chloride solution to the very top, and is covered with a small thick glass slide, which fits between four horns added to the ordinary container of the centrifuge tube. The centrifuge tube is ground to make close union with the glass slide. This is then centrifuged a thousand times a minute for one minute. The slide is then lifted from the tube and suspended drop downward on two plasticine pillars placed on a larger slide which is in the grasp of the mechanical stage. The eggs are thus usually seen in a clear medium lying close to the glass slide in one even plane. It is the most beautiful demonstration of hookworm-ova that I have seen. Clayton Lane has shown that the eggs left after the first slide are almost negligible. The smallest infection can be shown by this method, an excellent one of measuring the reduction of hookworm infection of a population in eggs per gramme after mass treatment. The only objection to this would be the difficulty of counting the masses of eggs in the small area in case of heavy infection. Another objection to this method for field-work is that it is unreliable in diagnosing ascariis infection, which has become an important part of hookworm campaigns in many districts, and is unreliable for trichuris eggs. These do not seem to cling to the drop that is brought away by the glass slide after centrifuging, as they do in the Willis method of salt flotation in the usual container. Just what percentage of accuracy is obtained by the Willis method in the case of ascariis it would be interesting to know, but this is quite certain, that it is far more accurate than the direct smear and centrifuge method, or than the Clayton Lane apparatus.

Having the opportunity, I was anxious to try the ordinary field technique of the Willis method against the accurate Clayton Lane method of direct centrifuge flotation, to learn what our percentage of error in field-work might be. I had with me Malakai, a native of Fiji, trained to the microscopic examination of faeces. While I was absent in Savai'i he ran a set of tests, using the ordinary field technique, even to the quarter-ounce containers for specimen. The plan adopted was that Malakai examined persons by this method, which is the Willis technique. A small portion of faeces, about 1 gramme, is well mixed with saturated salt solution in a quarter-ounce container in which it is obtained from the patient. The container is then filled with the solution, and over it a glass slide is placed for twenty minutes or more, when it is lifted from the tin and placed under the microscope smear side up. The eggs are found floating in the salt solution, which adheres to the slide.