1927.

NEW ZEALAND.

TOKELAU (UNION) ISLANDS.

A MEDICAL SURVEY OF THE TOKELAU (UNION) ISLANDS, BY A. F. MACKAY, M.B., B.Ch. (N.Z.), OF THE SAMOAN MEDICAL SERVICE.

[IN CONTINUATION OF PARLIAMENTARY PAPER A.–4D OF 1926.]

Presented to both Houses of the General Assembly by Command of His Excellency.

IN June, 1926, a medical survey was made of the Tokelau (or Union) Islands to ascertain the general health of the Natives.

These islands are now administered from Western Samoa, having been taken over from the Gilberts and Ellice Islands Colony about a year previous to the survey. The group consists of three coral atolls situated about three hundred miles north of Samoa and about fifty miles apart. Each atoll consists of a coral reef enclosing a central lagoon. Every here and there the reef is raised into islets about 10 ft. to 20 ft. above sea-level, and it is possible at low tide to walk right round from one islet to the next, there being no boat-passage at any spot between the lagoon and the outside sea. Only one islet is inhabited in each of the atolls, the remainder being used for growing food and copra. At Fakaofo the village islet is very small—no more than 12 acres—yet over four hundred people are living upon it. At Nukunono and Atafu the village islets are larger and are not so crowded.

Opportunity had to be taken of the visits of a local trading-schooner to reach the group and to move from island to island, fifteen days being spent on Fakaofo (population 444), twelve days on Nukunono (population 225), and six days on Atafu (population 360). The first two days on each island were occupied in examining the Natives, and the remaining days were devoted to treatment.

In language and appearance the Natives closely resemble the Samoans, both races being Polynesians. They live in huts rectangular in shape, with roofs and walls thatched with the leaves of the pandanus. The floors are of coral, and are covered with mats. As a rule there are several doorways, and these can be closed with coconut-leaf blinds.

Sanitation is primitive but effective. Drop latrines are built out over the lagoon, and are used. Rubbish is either buried in pits to form humus in which to grow bananas, or is thrown over the reef. Pigs are kept out of the villages behind pig-walls. Rats abound, especially on Nukunono. Flies and mosquitoes are conspicuous by their absence on the village islets, but are plentiful on the others.

For water the Natives have to depend on rain, which is collected in concrete and iron tanks. A few brackish wells exist. Water is seldom used for drinking purposes, however, the usual drink being coconut-milk.

The choice of the Tokelau-Islander in the matter of his diet is extremely limited. Coconut and fish are the staple foodstuffs. Pigs and fowls are plentiful, but are only eaten on special occasions. There is an edible pandanus the fruit of which is eaten, but the taro, the breadfruit, and the banana, which are so abundant in Samoa, are luxuries in these isles. Notwithstanding the coconut and fish diet, the physique on the whole is splendid and the general health good.

Stationed on the island of Atafu is a Native medical practitioner, born on the island but trained in Fiji. He has quite a good general knowledge of medicine, and seems keen on his work. To assist him he has a Native boy, whom he has trained himself. On each of the other two islands, Fakaofo and Nukunono, there is a Native dresser-boy. These two have had a three-months course of elementary medicine in Funafuti some years back. Their knowledge is necessarily extremely limited, yet they do quite good work on their respective islands. I think it would be better if the Native medical practitioner, instead of being permanently stationed at Atafu, as he is at present, were to visit the other two islands when he has the opportunity. He should also, I think, spend one month every year in Samoa, to keep abreast of the times. In this way he would serve the whole group and not just one island.

RINGWORM.

This is very prevalent, *Tinea imbricata*, *Tinea corporis tropicalis*, and *Tinea alba* being the chief varieties. *Tinea imbricata* is commonly known as "Tokelau ringworm." Apparently in the early days it was much more prevalent in these islands than it is to-day, hence the name "Tokelau ringworm." This ringworm is such a striking disfigurement—or one might even say, ornamentation—that on landing on these islands the attention is perhaps rather unduly attracted by it, and one gathers the impression that nearly everybody seems to suffer from it. This, however, is far from correct, and the less conspicuous *Tinea corporis tropicalis* is much more prevalent. Forty-eight cases of *Tinea imbricata* were found in the group, as against 152 cases of *Tinea corporis tropicalis*.

Tinea alba is very common, as in Samoa, where it is known as *Tane*. This form of ringworm, however, causes practically no irritation, and the Natives consequently do not seek treatment, although the white, floury patches it produces are very disfiguring on a dark skin.

The treatment adopted for *Tinea imbricata* and *Tinea corporis tropicalis* was as follows: A strong tincture of iodine was first painted over the affected parts. If much of the body was affected, a portion was painted every day until all was treated. When the skin peeled Ung. Chrysarobini

(4 per cent.) was rubbed in every second day. This rapidly cleared up cases of *Tinea corporis tropicalis*, *Tinea imbricata* proving more intractable. However, on leaving the group very little ringworm was showing, and a supply of iodine and Ung. Chrysarobini was left behind for the dresser-boys to continue treatment. Recurrence as soon as the treatment is ceased is the difficulty with *Tinea imbricata*, and the dresser-boys were instructed to keep treatment going to try to prevent recurrence, instead of ceasing treatment when the skin is clean and waiting to see if it will recur. Thus when the skin was clean they were to apply the ointment twice a week for a month, and then once a week for a second month, at once resuming frequent application at the first sign of any recurrence.

No effects of absorption, such as nephritis, were seen after twelve days' treatment with the ointment, but warnings were given for the possibility of this occurring, and, if so, to cease treatment forthwith.

Sulphur fumigation as a treatment for *Tinea imbricata* was not adopted on this trip. A sulphur-box is in existence at Atafu, and the Native medical practitioner showed me two cases of complete cure he had effected by its use after a daily exposure of twenty minutes for six months. No boat had been to the island for ten months prior to my visit, and of course the sulphur was finished, as well as most of the other medical stores. A supply of sulphur was promised him with which to continue treatment, as it is probably the safest method for cases where practically all the skin of the body is involved, whereas iodine and Ung. Chrysarobini may be more effective and quicker in action in mild cases. The trouble with all Natives is to get them to persist with any form of treatment, especially when they are not under the control of a white man. To sit in a sulphur-box daily for six months to cure a ringworm, of which he is possibly a little proud, is perhaps asking too much of a Native.

There is certainly room for further investigation to devise a safe, quick method of treating *Tinea imbricata*—a method that will not be too expensive to carry out on a large scale.

YAWS.

Yaws is not prevalent. Only sixty cases were seen in the group, and these for the most part were "crab" yaws of the late secondary stage. One primary sore was seen and one mild secondary rash. Two "sabre" tibiæ, two cases of tenosynovitis of the wrist (of possible yaws origin), and ten tertiary ulcers were also seen. It is hard to understand why there should be so little yaws, when in Samoa a few years ago, before active Novarsenobillon treatment was inaugurated, nearly every second child was covered with a secondary rash. I could not ascertain from the Tokelau people any time when yaws had been prevalent. It seems as though yaws may be largely a fly-borne disease, for in the village islets of the Tokelaus hardly a fly is to be seen. Novarsenobillon injections were given to every case of yaws seen in the group.

FILARIASIS.

This is not common, owing to the absence of mosquitoes in the village islets. Fifteen cases of elephantiasis were seen, mostly of the limbs, there being but one case of elephantiasis of the scrotum. A few hydroceles were seen, probably of filarial origin. Elephantoid fever and muscle-abscesses are rare.

TUBERCULOSIS.

This scourge, which is universal throughout the Pacific, does not seem to be unduly prevalent here. Two cases of advanced pulmonary phthisis were seen on Atafu, where there seems to be more tuberculosis than in the rest of the group. Eight cases of tuberculous glands in the neck were seen, and two old cases of Pott's disease of the spine. Segregation of all cases of tuberculosis is carried out on Atafu, the patients being kept on one of the neighbouring islets. Throughout the group a change of air to the windward side of the atoll during convalescence after any illness seems to be a universal practice.

INTESTINAL PARASITES.

Ascaris is seemingly unknown. *Oxyuris vermicularis* is not common, and no marked clinical evidence could be found of Hookworm.

LEPROSY.

No case of leprosy was seen.

EYE-DISEASES.

No severe epidemics of conjunctivitis appear to have occurred in these islands in recent years, at any rate not to the same extent as in Samoa. Staphylomata, so common in Samoa, are not to be seen. A few opacities of the cornea, and one case of cataract, and two cases of pterygium were the only eye troubles come across.

INFANTILE MORTALITY.

This is large. Every married woman was questioned as to the number of children she had had, and the number that had died. I found that out of 848 children born to 191 women, 278 had died. This gives a roughly estimated mortality of one in three, although not all these died in infancy. The greatest mortality undoubtedly occurs during the first year, and it is very large during the first week. On asking the mothers what their children had died of, I found that in the majority of cases death was attributed to a disease known locally as *mumu*. This, they told me, was characterized by high fever and a red blush all over the body, and was frequently rapidly fatal. I was shown only one case, and that was a child two weeks old suffering from Pemphigus neonatorum. This, they said, was one form of *mumu*. Dr. F. W. O'Connor, in his "Researches in the Western Pacific," page 28, mentions this *mumu* as occurring in the Ellice Islands, and states that it nearly always ends in an outbreak of yaws. I could find no connection between *mumu* and yaws in the Tokelau Islands.

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