ashamed to ask for free treatment. Eventually a few more were collected and given treatment without charge. Under the system of free treatment at the first visit, eighty-six cases were treated at the first and 117 cases at the second village—and this in spite of the fact that injections were being given at villages every three or four miles, so that the cases in question were drawn from a district with a two-mile radius, instead of five or ten miles, as at the previous visits.

Treatment.—At the present time we try to give each case of yaws three doses of novarsenobillon, with an interval of a week between each dose. This is the standard treatment given at all our hospitals and dispensaries (on one or two days a week) all the year round.

To make certain that the treatment is available to the whole population we send parties, consisting of a European doctor and one to three Samoan assistants, round the islands, who stop at every village, or at the central village when there are several within a short distance, and give the injections. On these medical excursions, or "malagas," as they are called, the name, age, village, and dose of each patient is recorded for future reference.

Dose.—The method of administering the drug is to dissolve 0·1 gramme of novarsenobillon in 1·0 c.c. of sterile distilled water, and inject from 0·5 to 6·0 c.c. as a dose, depending on the age and sex of the patient. 0·5 c.c. is given to children under one year that are in poor health, otherwise we start at 1 c.c., and this dose, up to 1·5 c.c., which is given to children of three to five years, has often to be given into the buttock-muscles. The larger doses are given into the arm-veins with 5·0 c.c. as the maximum female and 6·0 c.c. as the maximum male dose. The same dose is given at each of the three injections.

Method of Administration.—These injections are practically all given by our Native medical practitioner and the cadets that we are training to become Native medical practitioners. They scrub their hands with soap and water as for a major operation, and then soak them in a solution of biniodide of mercury prior to giving the injections. The dose is given with a 10 c.c. "Record" syringe, and a $2\frac{1}{4}$ in. fine-bore rustless-metal needle, which are sterilized in carbolic acid, 1 in 20, then rinsed out in sterile water, and the requisite dose drawn into the syringe. The patient's skin over the vein is painted with tincture of iodine by an assistant, and the arm congested by holding a rubber tube round the upper arm tight enough to obliterate the superficial veins without obstructing the arterial flow. The needle is passed into the lumen of the vein, and a little blood is drawn into the syringe to make certain that the point of the needle is free in the vein; then the rubber band is released and the injection given. The syringe and needle are washed in carbolic, 1 in 20, followed by spirit, and the needle is then allowed to soak in spirit or carbolic while the syringe and another needle are rinsed out with sterile water for the next injection. The use of six to twelve needles in rotation allows one operator to give about fifty to sixty injections in an hour.

The intramuscular injection for babies and little children is given at a point midway between the crest of the ilium and the great trochanter of the femur.

On malagas, when distilled water cannot be carried, the water from the village drinking-well or stream is used after having been boiled in a clean kettle and allowed to cool. The drinking-water throughout these islands sterilized by this method appears to answer just as well as distilled water.

Ill Effects from the Injections.—These may be grouped under two headings: (*a*) Immediate, within a few minutes or hours; (*b*) remote, coming on the following day or after.

(*a.*) These consist for the most part of vomiting or fainting, with occasionally headache. They are almost without exception due to the patient arriving with an overloaded stomach, or having hurried too much coming to the place of injection, with the result that the patient is hot, exhausted, and has a rapid pulse. These cases appear to suffer no ill effects if not injected till the pulse has settled down.

(*b.*) The remote effects may be classed as—(1.) Skin disturbances, such as erythematous rashes, followed in some cases by desquamation and often associated with a conjunctivitis. (2.) Kidney disturbances, which usually take the form of a subacute but may develop into an acute nephritis. This condition appears to develop much more frequently in the half-caste than with the pure Samoan children, and has caused the only case of death that has been reported which could be attributed to the drug. This patient was very ill before the injection was given, so that the death was not entirely due to the drug. (3.) Abscess formation: this is by far the most common ill effect, and usually occurs in the buttock of the poorly nourished marasmic babies that are often covered with septic sores, but even under the conditions that are encountered on malaga the proportion of these cases is not high. For example, in the malaga mentioned later, where 1,892 injections were given, only one abscess formed. The buttock-muscles often remain brawny for some days, and in a few cases even weeks, after the injections, and the same may occur in the arm if the novarsenobillon leaks from the vein. (4.) Febrile reaction; this may last from one to three days, but as a rule causes the patient little discomfort. On the whole the ill effects are very rare, only one case being affected for several hundred injected.

Effect of Treatment on Yaws.—In November and December, 1923, to test the effect of this method of treatment, a district was selected whose population was rather isolated, so that the results would not be affected by the arrival of people from other districts. The outlet of this district led to Apia, so that any cases that sought injection directly after the malaga would be recorded in the hospital books.

The total population of the district was 2,782, consisting of 1,387 males and 1,395 females. Of the males, 61 were infants under two years, 615 were classed as boys (two to seventeen years), 711 as adult men (over seventeen years); 727 were women over fifteen years of age. Notification was sent to the Native officials that the malaga party would give injections at five selected villages—each on a different day—the village being selected so that approximately five hundred people lived within easy walking-distance. The injections were given in the early morning of each day, and in the afternoon