

LEPROSY AT NAURU SINCE 1928 *

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It is the purpose of this paper to complete the story of leprosy at Nauru from the time of Dr. Bray's able article, which appeared in 1930 (1), up to the end of 1933. First, however, it is desired to make a few remarks on that paper in the light of developments since he left here. These points may be most quickly presented as a summary:

1. The population of the island was given as about 2,500, one-half being native Nauruans. The present total is about 2,700, of whom 1,550 are Nauruans, 1,000 Chinese coolies, and 150 Europeans.

2. Leprosy has now occurred in every district on the island, whereas at that time one district had not yielded a case.

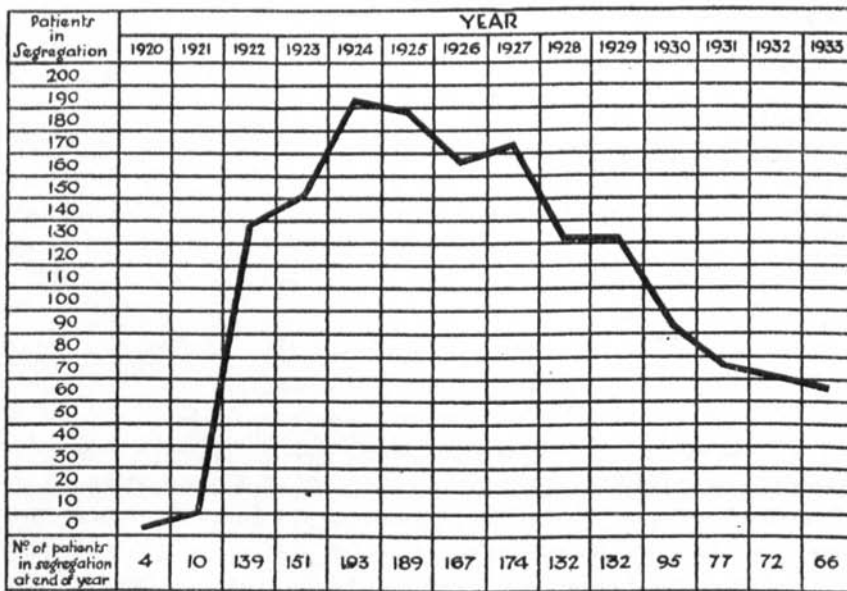
3. Mass hookworm treatments are no longer carried out every six months. A recent survey (2) showed that that disease is almost eliminated.

4. With reference to the beginning of nodular leprosy here, in 1920, there is a story of an earlier commencement which is worthy of record, even though it cannot be proved because no medical man ever verified it. The old orderly in charge of the leper station, who is a very reliable man, says that before the outbreak of war in 1914 a Nauruan named Eria (now in the station) had a "white patch of anesthetic skin" above one knee. In 1916, when this same orderly was training in the Ellice Islands, he himself developed a macule above the right knee. As he had no idea then what leprosy was he did not show it to the medical officer. Children used to amuse themselves putting pins in the macule, which is still on his knee. He returned to Nauru again as a hospital orderly when his training was completed.

Varieties of Cases.—The cases of leprosy here are divided into two main groups, namely, (1) *uninfectious*, and (2) *infectious*. Patients classed as infectious are those in whom acid-fast organisms, either in bacillary or coccoidal form, can be demonstrated from

* This article brings up to date the unique situation on Nauru, an earlier report on which, by Dr. G. W. Bray, formerly Medical Officer there, is reproduced in condensed form elsewhere in this issue of the JOURNAL.—EDITOR.

the skin or mucous membrane; the uninfectious are those in whom they cannot be so found. This subdivision was suggested to this administration by Sir Leonard Rogers (3a, 4). However, for convenience they are also divided into three clinical groups, (1) *nodular*, (2) *macular*—by which we mean "neural cases"—and (3) *mixed*. Of those now in segregation 13 per cent are of the nodular variety, 19 per cent are mixed, and the remainder, 68 per cent, are macular. Two other classes or groups of patients recognized are (a) those on *parole* and attending the leprosy clinic, and (b) *suspects*.



TEXT-FIG. 1. Graph showing the total number of cases of leprosy in segregation at the end of each year since the appearance of the disease at Nauru.

Diagnosis.—In this connection there is nothing to be added to what Dr. Bray has said. The frequent medical inspections of all natives are still continued.

Incidence of the disease.—The incidence of cases since the first four were observed in 1920 is shown in Text-figure 1, in which are shown the total numbers of infectious cases in isolation each year up to and including 1933. The numbers of new cases actually isolated during each of the past five years are shown in the first line of Table 1. The large figure for admissions to the station in 1932 appears alarming, but it is only fair to say that the patients were

ordered into the station by a relieving medical officer without the bacteriological examination that is customarily made. The total number now in the station is 66, of whom 22 are in what we call the "inner fence," which is reserved for advanced and nodular cases.

TABLE 1.—Admissions, discharges and relapses at both clinic and isolation station during the five years, 1929-1933, inclusive.

Occurrence	Year				
	1929	1930	1931	1932	1933
Admissions, new patients to station	5	4	4	16 ^a	4
Admissions, new patients to clinic	29	60	31	43	8
Discharges, patients from station	4	39	19	21	—
Discharges, patients from clinic	6	2	3	22	15
Relapses, admitted to station	—	—	—	—	11 ^b
Relapses, admitted to clinic	—	—	—	—	21 ^b
Total number of cases in station	132	95	77	72	66

^aThis number was admitted without bacteriological examination.

^bTotal for the five-year period.

At present all of the cases are Nauruans; there have been only three Chinese patients in the station in the past ten years. The Chinese laborers at Nauru are kept separate from the native inhabitants; they are housed in a very large fenced compound inside which they have a real Chinatown, where they are required to remain when not working in the phosphate fields. One of the three patients mentioned was returned to China and the other two have died.

The leprosy clinic.—Two of these clinics have been established to save the patients long journeys. The total number of patients now attending them is 155, whereas in 1929 it was 115. It has frequently been remarked that this number is high, but it must be realized that the number attending the clinic at any one time will depend upon what one adopts as the standard of "apparent cure". The large number is an index of the severity of the standard—of, so to speak, the strength of the spring on the safety valve.

The standard of apparent cure now in force requires that the patient shall have had no active sign of leprosy for two years—this

criterion excluding scars of permanent destruction—and that he shall have attended the clinic for at least five years. Thus it will be seen that the patients will necessarily be put on the clinic list more rapidly than they can be discharged, and that the numbers are therefore certain to increase while this standard is required.

These patients are made to live in houses separate from the healthy community, and their children live apart from them. They can only be employed for laboring or police work, which they are encouraged to take up. In other respects they lead the same life as the healthy native.

Treatment.—(a) The uninfected cases are treated at the clinics, twice a week. The drug used is the ethyl esters of *Hydnocarpus wightiana* oil, prepared on the island by the cold process from imported crude oil and creosoted 3 per cent.¹ This drug, given by intramuscular injection, is now the sheet-anchor of treatment here, whereas in Dr. Bray's time all other treatments had been abandoned in favor of wightiana oil by mouth. Cases with stationary macules are treated with scattered intradermal injections of 2 to 4 cc. of the ethyl esters to which has been added iodine 0.5 per cent and benzocaine 2 per cent. We have obtained better results with this than with alepol given subcutaneously, or by intradermal treatment with creosoted esters alone or the crude oil.

(b) The infectious cases, on the other hand, are segregated in the leper station. Almost all are treated with the ethyl esters. Potassium iodide, alepol, the crude oil and trichloroacetic acid are rarely used.

The patients are divided into two groups, called the "inner fence" or advanced group, and the "outer fence" or mild group. These groups are separated by a wire fence, and when attending meetings or the moving picture show in the station they always sit apart. It is to be observed that it is not certain that all cases in the station—especially the macular ones—are bacteriologically positive. Admissions during one year were without bacteriological examination, as has been said, and pressure of work in the government general hospital prevents our examining everybody in the station annually as we would like to.

¹ It may be of interest that we make our "ethyl" esters using methylated spirit, having been forced to this because some of the patients used to drink the pure ethyl alcohol. We have very few abscesses with this drug (creosoted), given intramuscularly.

The inmates of the station lead a free life within their own fences. The mild cases play cricket and a native ball game called "itibweb"; they are soon to be provided with a tennis court. Most of the men go fishing, as the station is on the sea. Plenty of coconuts, "toddy" and pandanus are available. Also, recently planted, are several dozen paw-paw trees, the same number of banana plants, and numerous pumpkins; all these are in a special garden area.

Paroles.—Attention may be called to the figures in Table 1 for patients discharged on parole from the station. Every year a selection is made of all cases who appear to have become mild and arrested, and so likely to be ready for discharge, and they are examined bacteriologically. If negative in two examinations at intervals of six months they are discharged on parole from the station and transferred to the out-patient clinic for further treatment and observation. They live in their old districts and are subject only to the housing restrictions mentioned, being otherwise free to come and to go on the island as they please.

TABLE 2.—Numbers and causes of deaths among infectious cases of leprosy in the isolation station.

Year	Number	Diagnosis
1929	One	Appendicitis with peritonitis
1930	Four	Infective diarrhoea Paralysis Pulmonary tuberculosis (2 cases)
1931	Three	Acute pericarditis Pulmonary tuberculosis (2 cases)
1932	None	
1933	One	Chronic myocarditis, senility

The number paroled to date in the last five years, 83, is large in comparison with the total number of cases in the station. On the other hand, only 11 paroled cases relapsed during the same period and were re-admitted to the station. Of these, 8 were macular cases and 3 nodular. Table 1 also shows that 48 patients were discharged from the clinic during five years, and 21 were readmitted to the clinic as relapses. It is to be understood that this group of relapsed patients had never been in the station; nor were they found bacteriologically positive when relapsed, otherwise they would have been admitted to the station as new infectious cases.

Prophylaxis.—When a fresh case of infectious leprosy is discovered his house is disinfected by the usual methods. The admin-

istration is making a strong attack on all diseases that may weaken the resistance of the individual, a special attempt being made to deal with tuberculosis. There is much filariasis to be dealt with. An up-to-date laboratory has been built and an X-ray plant purchased. Quarantine regulations have been made very stringent in an endeavor to avert any further epidemics, and no colored crews are allowed ashore.

Miscellaneous.—There have been nine deaths in the last five years, in an average population of 90, or about 2 per cent per annum. The largest number in any year was three (1930), while in 1932 there was none. Tuberculosis, as usual, is the most conspicuous cause of death, having been the diagnosis in four cases; the other diagnoses were appendicitis with peritonitis, infective diarrhoea, paralysis, acute pericarditis, and chronic myocarditis with senility.

Infants born in the leper station are removed at birth and handed over to a caretaker in one of the districts.

SUMMARY

In reviewing the progress of leprosy at Nauru in the last five years one is impressed with the facts that:

1. The disease is slowly decreasing in incidence.
2. Early diagnosis has been of paramount importance and has been afforded by frequent medical inspections of the body surface of every native.
3. The division of the cases into infectious and uninfected and the different treatment of these groups has given better results than would have resulted with compulsory segregation of every case of leprosy.
4. The most useful drug has proved to be ethyl esters of *Hydnocarpus wightiana* oil.
5. The administration is endeavoring to bring the resistance of each individual to its maximum by attacking all other diseases.

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