

LEPROSY IN NIUE ISLAND
A NOTE ON THE HISTORY OF THE DISEASE

G. O. L. DEMPSTER
Medical Officer of Health
Dunedin, New Zealand

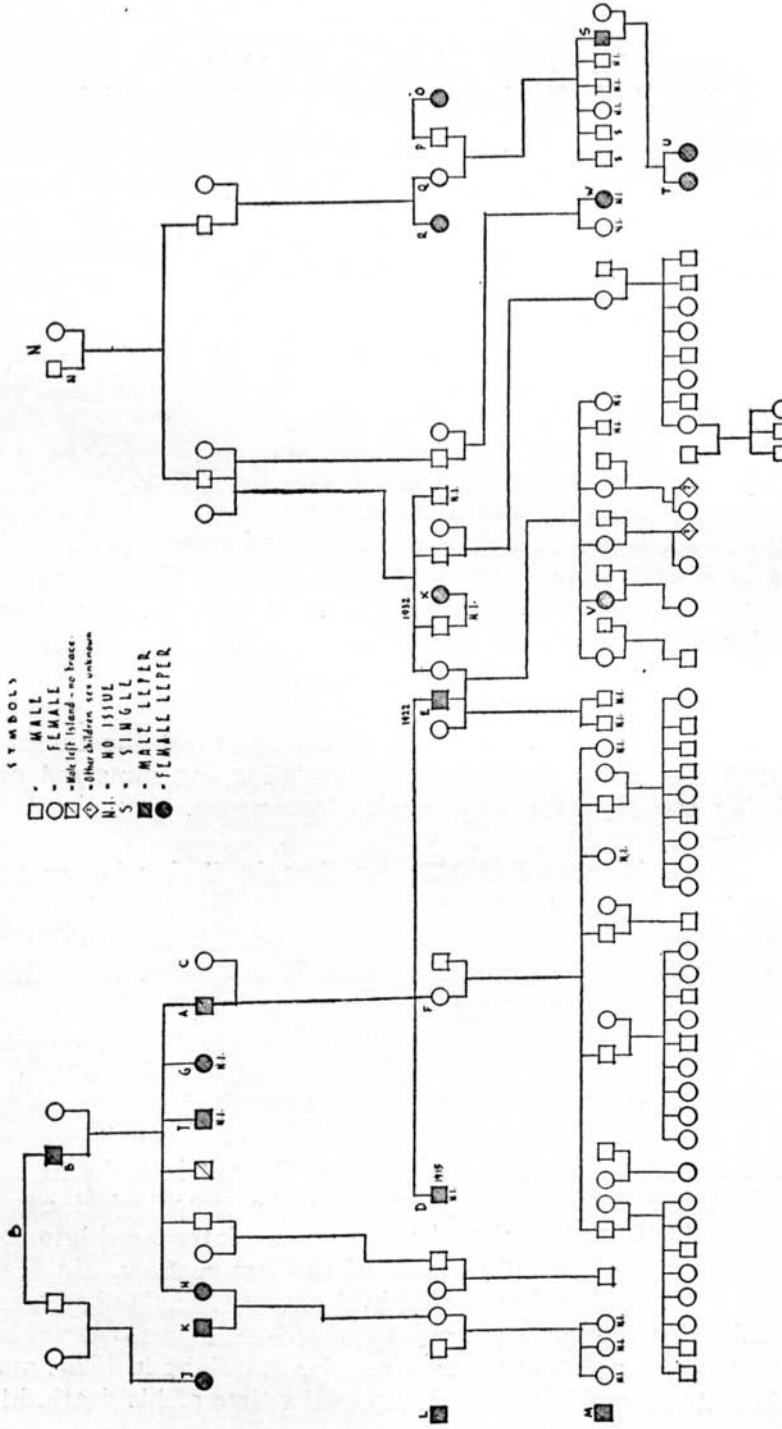
This historical note on leprosy in Niue Island is put forward as a small contribution to the epidemiology of the disease, with the hope that it may be of some use to anyone wishing to bring the record of the disease in Niue up to date in the future. The data are as of the end of 1938, when the writer severed his connection with the island administration.

Niue is a fairly lone island situated approximately 300 miles east of the Tonga group, between it and the Cook Islands, its actual position in the Pacific being 19° South Latitude and 169°48' West Longitude. It is a coral island approximately ten miles in diameter and 64,000 acres in extent. The climate is similar to that of other tropical islands in Oceania. The mean annual temperature taken over a period of years was 76.7°F., and the mean annual rainfall 79.1 inches.

The island is inhabited by people of Polynesian stock who number approximately 4,000, the actual figure at the time of the 1936 census being 4,104. The population has remained remarkably steady, with only small fluctuations, over the last thirty years.

Niue was discovered in 1774 by Captain Cook who, on account of the reception he received, named it Savage Island. It was annexed by New Zealand in 1901 and has had an administration separate from that of the Cook Islands since 1903. The first government medical officer was appointed in 1911, and since that time a resident medical officer has been stationed there.

That leprosy has been introduced recently is indicated by the Niuean word for the disease. This word, "lepela," is obviously a rendering of the English word "leper" into the native tongue. From evidence supplied from the genealogical chart (Text-fig. 1) it appears that the disease was introduced into the island not later than the eighties of the last century. In that chart it will be noted that E died in the year 1922. He had been married twice and left eight children. If he had just married at eighteen years, a not uncommon age for marriage in Niue, and had begotten a child every year up to the time of his death, his



TEXT-FIG. 1. Genealogies of leprosy persons on Niue Island complete to 1938.

age at death would be 26. It appears a fair assumption to place his father's marriage 30 to 40 years before 1922.

Since there was no resident medical officer prior to 1911, information concerning the earlier case has had to be drawn largely from native sources. So far as is known the disease has been largely confined to two families, the Vetavihi family, B in the chart, and the Munamuna family, N in the chart.

Leprosy was first introduced by A, a Niuean male who had been living for some time in Oahu, Hawaii, where he contracted the disease. He returned to Niue suffering from it, and soon after married a woman C, by whom he had two sons, D and E, and a daughter F. A first infected his father, B, who died of the disease. After the death of B, two of his daughters, G and H,—*i.e.*, sisters of the original case—contracted leprosy and died. Another brother of A—*i.e.*, I—contracted the infection about the same time and succumbed. The next case to come to notice was a girl J, a niece of B and a cousin of the original case. At about the same time B's son-in-law K, husband of the deceased H, contracted leprosy and died of it. Another brother of A left Niue and was not heard of again; it is quite possible that he carried the disease elsewhere.

The next case to appear was D, son of the original case A who, it will be recalled, suffered from the disease at the time of his marriage. D was treated by European medical officers and there is a record of his death in 1915. The brother of D—*i.e.*, E—attended his brother during isolation, developed leprosy, and died of it in 1922. The Niueans attribute his infection to his nursing of D, but such an assumption seems scarcely necessary when it is recalled that his father had leprosy, and also his uncles and aunts. E was the last case to appear in the Vetavihi family.

It is of interest to glance at this stage at the havoc wrought by A on his immediate relatives. He infected, directly or indirectly, his father, two sisters, a brother, two sons and possibly his cousin and brother-in-law.

With regard to the Munamuna family (N in the genealogical chart), the first case was in a woman O who contracted the disease from close association with J. She in turn infected her sister-in-law R, whose death was recorded in 1918. The next to contract leprosy was S, who could have been infected by either of his aunts, R or O. This man's death is recorded in 1916. After his death his daughter T developed the disease and was removed to Makogai, and died there in 1938. Besides contact

with her father S she had been in close contact with her aunt R, who lived nearby. Later S's other daughter, U, contracted the disease from her father or her sister. In the other branch of N's family, V was the next victim to be discovered and infection was presumably from her father E. This patient was treated at Makogai and was permitted to return to Niue in 1938. The next one to be discovered was W, in 1932; and she is said to have been in close contact with V. She was removed to Makogai; and the final case, X, was discovered soon after.

Two other cases of the disease are known to have occurred in males L and M, who were not members or connections of the two families, one indeed coming from another village. L is said to have become infected by wearing the discarded clothing of E after the latter's death. L was treated at Makogai. M is said to have been similarly infected from L, and was discovered in 1935. However, M informed me that he contracted the disease through intercourse with one of the infected females.

Rogers has mentioned certain conditions of life conducive to the spread of leprosy. These are, among other factors, a low stage of civilization and hygiene, defective and overcrowded houses, promiscuity both general and sexual, deficient diet and the habit of going barefooted. All these conditions have been operative in Niue, yet to the best of our knowledge there has been—up to the end of 1938—a total of only 19 leprosy persons, 9 males and 10 females, over approximately the last fifty years. Leprosy has never become so widespread as it has in other less fortunate Pacific islands, the outstanding example of which is Nauru where, in 1925, 30 per cent of a population of 2,500 were found to be leprosy.

The tendency of family groups to live together or in very close proximity has probably accounted for the disease in Niue remaining localized in two families. There is also evidence that it has spread beyond immediate relatives by close contact, by fomites such as the clothing of infected individuals, and by conjugal infection both regular and irregular.

It is realized that the account presented here is very incomplete, but the excuse must be that no further records or information were available at the time of compiling this paper.

In conclusion I must acknowledge the debt owed to the late Mr. J. McMahon-Box, whose knowledge of native relationships enabled the genealogical chart to be compiled.

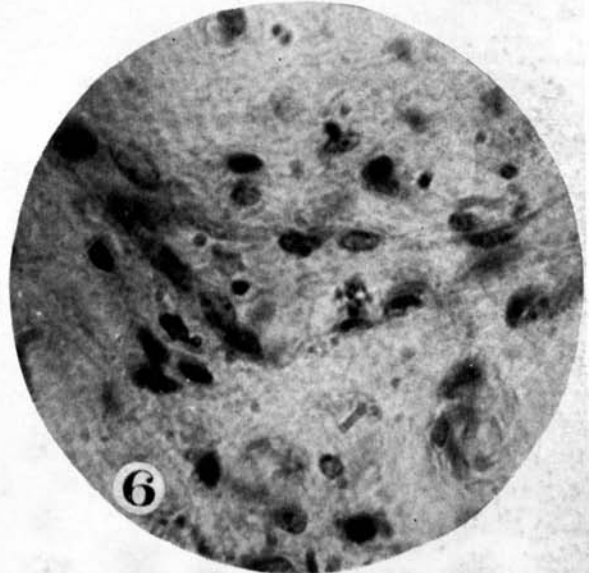
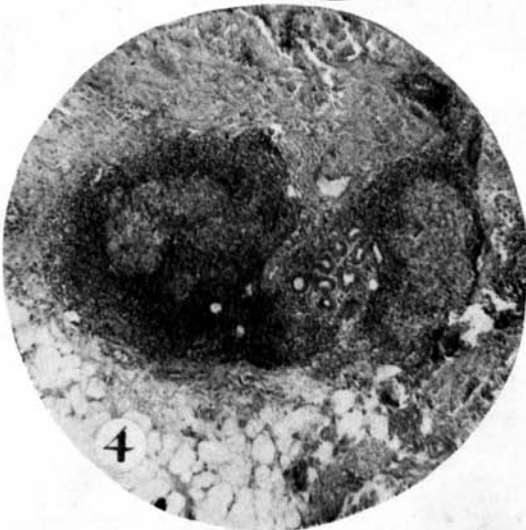
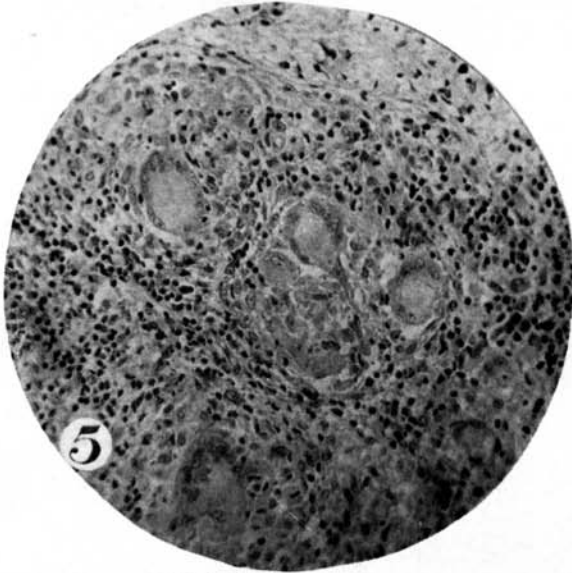
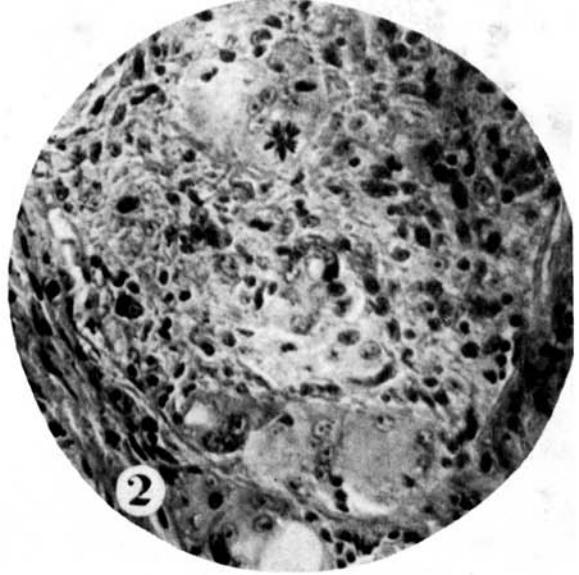
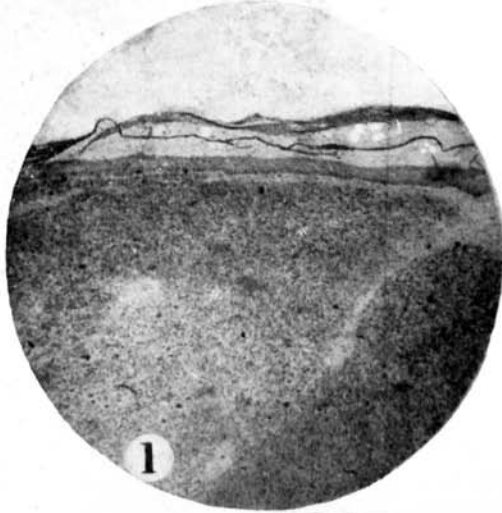


PLATE 16

FIG. 7. State évolutif de la formation de la cellule de Virchow a partir de l'histiocyte.

FIG. 8. Réaction éosinophile dans la lèpre tuberculoïde.

FIGS. 9 and 10. Réaction pérocytaire avec mitose et bacilles.

