

The combined data from our investigations are :—

New Zealand average	..	..	..	..	65 ; median value, 46.
Non-New-Zealand average	..	..	..	..	165 ; median value, 114.

It is evident that all districts of New Zealand have relatively low iodine excretions compared with districts outside New Zealand. The average for New Zealand is 100 less than the average of non-New-Zealand determinations.

CHAPTER IV.—THE INCIDENCE OF GOITRE IN NEW ZEALAND AND CERTAIN ISLANDS OF THE PACIFIC.

A wealth of publication is now available to substantiate the claim that thyroid derangement is widespread throughout New Zealand. An analysis of the official vital statistics of New Zealand as it relates to this subject has been published by two of us (Hercus and Purves, 1936). This study revealed an eight-fold increase in the death-rate between the quinquennia of 1889–93, and 1929–33, and a twenty-five-fold increase in the admissions to the public hospitals of the Dominion over the same period. A summary of these findings is shown in Annexure B.

Subsequent records show no substantial alteration in incidence since 1933. A positive correlation was found between the incidence of simple and toxic goitre in the provinces. In addition to this record of what may be regarded as end results of thyroid derangement, field surveys, mostly confined to school-children, are constantly being made, and year by year the annual reports of the Director-General of Health bear evidence to the widespread and persistent nature of the endemic. Comparatively few surveys have been made of sections of the community other than school-children. Turbott (1932) in a survey of 300 adult women in Hawke's Bay records 44 per cent. with enlargement of the thyroid gland. Irwin (1935) found an incidence of 34 per cent. among 341 mothers in attendance at Plunket clinics throughout New Zealand, and of 403 children under eight years of age who were under the supervision of the same society he found 19 per cent. with thyroid enlargement. For some years family surveys have been carried out under the supervision of one of us (C.E.H.) in certain endemic areas in New Zealand by senior medical students. We believe that these family surveys give a more reliable indication of the true incidence of thyroid derangement than do surveys limited to selected age-groups. Table IV shows the results of such investigations in the districts studied. Table V shows death-rates and hospital admissions from thyroid diseases for New Zealand provinces. For comparison Table VI shows death-rates from thyroid diseases for Australian States. It is evident that all districts of New Zealand are goitrous, though to varying degrees. By comparison Australia is evidently less goitrous. Indeed, from our inquiries it would appear that Adelaide and Sydney may be regarded as non-goitrous.

Table IV.—Incidence of Goitre in Family Surveys.

District.	Percentage Goitre Incidence in Family Surveys.	Observer.
Cromwell	45	Duncan and Harrison (1937).
Waikaia	44	Armour and Malver (1937).
Gisborne	34	Burnard and McGeorge (1938).
New Plymouth	25	Law and Lomas (1937).
Stewart Island	20	Hunter and Miller (1935).
Clydevale	74	Aitken (1937).

Table V.

Province.	Mean Annual Death- rate from Diseases of Thyroid per 10,000 (1929–33).	Hospital Admission Rate for All Thyroid Diseases per 10,000 (1929–33).
Auckland	0.25	1.75
Hawke's Bay	0.40	5.90
Taranaki	0.57	1.00
Wellington	0.41	1.91
Marlborough	0.21	3.80
Nelson	0.38	2.00
Westland	1.59	2.64
Canterbury	0.64	4.00
Otago	0.57	2.30
Southland	0.62	1.16