1937.

NEW ZEALAND.

DEPARTMENT OF HEALTH.

ANNUAL REPORT OF THE DIRECTOR-GENERAL OF HEALTH.

Presented in pursuance of Section 100 of the Hospitals and Charitable Institutions Act, 1926.

HON. P. FRASER, MINISTER OF HEALTH.

CONTENTS.

REPORTS.

THE DIRECTOR-GENERAL OF HEALTH to the Hon. the MINISTER OF HEALTH, Wellington.

I HAVE the honour to lay before you the annual report of the Department for the year 1936–37.

PART I.—GENERAL SURVEY.

The outstanding epidemiological feature of 1936 was an outbreak of poliomyelitis, which began in December. The year was also notable for a welcome rise in the birth-rate, a substantial decline in the maternal-mortality rate, and a new record low infant-mortality rate. These favourable statistics however, were offset by a rise in the death-rate, and, in particular, a rise in the death-rate from tuberculosis.

VITAL STATISTICS.

(Exclusive of Maori.)

Death-rate.—The death-rate was 8·75 per 1,000 mean population, as compared with the rate of 8·22 in the preceding year.

Infant Mortality.—The infant-mortality rate was 30·96 per 1,000 live births, the lowest rate ever recorded in New Zealand. In 1935 it was 32·26.

Still-births.—The still-birth rate was 29·5 per 1,000 live births, a slight improvement on the 1935 figure of 30·8.

Birth-rate.—The total births were 24,837, representing a rate of 16·64 per 1,000 mean population. These figures compare favourably with those of 1935—total births, 23,965; birth-rate, 16·13. This rise in the rate is the first check to a movement which has been steadily downward since 1920.

Maternal-mortality Rate.—The maternal-mortality rate, including deaths from septic abortions, was 3·70 per 1,000 live births, as compared with 4·21 in 1935. This fall in the rate was mainly due to a reduction in the number of septic abortions from 23 in 1935 to 14 in 1936.

In 1924, when the Department embarked on an active campaign for the promotion of maternal welfare, the maternal-mortality rate was 5·0.

Infectious and other Diseases.

(Exclusive of Maori, unless otherwise stated.)

The total number of notifiable diseases reported in 1936 was 3,652, compared with 3,349 cases in the preceding year.

Scarlet Fever.—This disease was of comparatively low incidence, but shows a rising tendency; 1,152 cases and 8 deaths were reported, as against 863 cases and 8 deaths in 1935.

Diphtheria.—Five hundred and thirteen cases of diphtheria were notified, as compared with 747 in 1935. Twenty deaths were recorded, giving a death-rate of 0·13 per 10,000, as compared with 33 deaths and a rate of 0·22 in 1935.

Dr. Maclean, Medical Officer of Health, Wellington, has given the following account of an institutional outbreak with some unusual features:—

> "Some 20 cases occurred in an outbreak involving the Wanganui Hospital and the Karitane Hospital, Wanganui.
>
> "The usual custom at the general hospital was to swab *all* children admitted to hospital to detect possible carriers of diphtheria. For some reason a baby was overlooked in this connection, and proved to have a diphtheritic condition of the skin of the face. During this child's stay in the ward and before its infectious condition was discovered, a baby was admitted from the Karitane Hospital and discharged back to it. Five nurses and three babies at Karitane Hospital were subsequently infected, and in several cases the infection took the unusual form of an acute otitis media without throat symptoms. Fortunately all the patients recovered, but the work of the hospital was considerably upset, and the Matron herself was one of those affected."

Active immunization with toxin anti-toxin or with ana-toxin, which has been in use in New Zealand for a number of years, constitutes a method of prophylaxis which can be adopted more widely with advantage. Dr. Turbott, when Medical Officer of Health, Gisborne, immunized a large proportion of children in the East Cape Health District. In his current report he writes:—

> "In 1931 was begun a district campaign to keep the whole East Cape Health District free from epidemics of this disease by immunizing all children whose parents consent every five years. The whole district was covered in 1931.
>
> "In 1936 the task of immunizing the new generation of school-children and infants offering was begun by Dr. Heycock, and will be continued until the territory is again covered. Five hundred and thirty-seven children were immunized during the last school term."

Dr. Turbott then goes on to state that in 1936 only 15 cases of diphtheria, representing a rate of 2·45 per 10,000 population, occurred in the East Cape Health District. He contrasts this with the rate of 4·78 per 10,000 which has been experienced by the South Auckland Health District. These areas are regarded as comparable, and the figures in Dr. Turbott's opinion show the benefits of immunization.

Enteric Fever.—Sixty-one cases were notified, with a death-rate of 0·05 per 10,000, as compared with 87 cases and a death-rate of 0·07 in 1935. Enteric fever, however, remains a special problem of the Maori. Dr. Turbott, Medical Officer of Health, Hamilton, writes as follows of the incidence of enteric fever amongst the Maoris in the South Auckland Health District:—

> "The relative incidence on European and Maori in the district is readily appreciated from the figures: 12 European cases (1·02 per 10,000), 39 Maori cases (23·92 per 10,000). The deaths occur more easily in the Maoris, as in this district they are still very backward in seeking attention, and would rather hide typhoids than willingly call nursing or medical help. When found, therefore, cases are often in the second and third weeks of the illness, sometimes later, and are very seriously ill when taken or sent to hospital by the district nurse. The hospital is blamed for the death, and the vicious circle of hiding of cases encouraged. A series of contact cases in one valley was solely due to the hiding for three weeks of the first case. The district nurse visited the area, but the case was transported from one house to another so that she missed discovering it, and only the occurrence of further cases led a more enlightened Maori to report the matter.
>
> "Another series of cases in Maoris was almost certainly due to defective sanitation. A group of communal-living Maoris, with no privies at all, and shallow waterholes that really received the seepage from the huts on higher level, had typhoid cases in each house in the group. All contacts were inoculated, tube privies built, and the water condemned unless boiled—the typhoid ceased, and this little community is now installing tanks, having become a little more sanitary conscious than formerly.
>
> "The attack on the typhoid problem demands a combination of inoculation and sanitation campaigns. The former helps to shield the susceptible population while the slower sanitary improvements are sought. The latter are slow in eventuating. First the Maori has to be educated to want better housing and sanitation. When this is achieved, there is still the dead-weight economic factor to overcome. For landless Maoris of the 'squatter' type there seems little hope unless the Government will give direct financial help; in the case of combating typhoid fever, this means safe water-supplies and sound privies. The 'squatter' type of Maori has not the wherewithal for either of these needed improvements, nor can he get any one to trust him with advances of money, as he has no tangible assets."

The same officer, reporting on enteric fever in the East Cape Health District, states:—

> "Twenty-one Maori cases gave a rate of 10·91 per 10,000 Maoris, less than half the Maori incidence in the Waikato area (23·92 per 10,000). It could reasonably be assumed that the systematic and district-wide adoption of inoculative protective measures since 1928 has helped to put East Cape in this favourable position as regards this disease. In South Auckland antityphoid inoculations have been prosecuted only as cases arose until very recent years."

Dr. B. Wyn-Irwin, Medical Officer of Health, Wairarapa - Hawke's Bay Health District, comments as follows on enteric fever amongst Maoris :—

"Wairarapa - Hawke's Bay, with its 32 cases, showed the highest incidence for many years, almost entirely due to the continued primitive sanitation and superstition among the large Maori population of Hawke's Bay, for 23 of the total cases, and all the fatal cases, were of Maori blood, and of the 9 Europeans 6 were in contact with, or probably infected by, Maoris.

"At least 18 of the cases here—as well as 1 in the East Cape district—were due directly or indirectly to the consumption of shell-fish from Westshore, in spite of augmented warning notices in Maori, and continual propaganda. It would almost seem that nothing short of destruction of the beds, or diversion of the Napier sewage away from this hereditary food-supply of the Natives, will put a stop to these cases and the consequent recruitment of potential carriers among the population. In the meanwhile reliance is placed on biennial T.A.B. inoculations of all Maori school-children in Hawke's Bay and as many possible contacts of cases, which process has been aided by issue of certificates of inoculation. The institution of bored-hole latrines at Porangahau, an endemic focus, also constitutes an advance on previous sanitation there.

"Again, 9 cases resulted from the handling, &c., at a tangi, of the body of a child who died from the disease ; while 4 cases developing on a Wairarapa sheep-station were connected with an itinerant Maori shearing-gang from Hawke's Bay, though no carriers were detected ; in this instance crude sanitation prepared the way for such an outbreak.

"All cases were hospitalized, eventually, though there was delayed medical consultation in many of the Maori cases. Clinical diagnosis was confirmed by Widal test alone in 15 cases, by isolation of organism in 5, and by both in 5. Seven of the cases (Maoris) had received T.A.B. inoculation within previous two years ; none of these was fatal, and only 1 severe. The sole case of Paratyphoid B infection was probably not of recent origin."

Dysentery.—Dr. Hughes, Medical Officer of Health, Auckland, records 60 cases of this disease out of a total of 62 notifications for the whole Dominion. During June and July 1935, 50 cases were reported from the Avondale Mental Hospital. The cases occurred amongst a particularly troublesome class of patient with no sense of cleanliness. Only one of the staff was affected. The cases were all of the Flexner type.

A further group of 8 cases, 7 in one household, occurred in an Auckland suburb. These were attributed to the consumption of lettuce grown on soil where night-soil had been deposited.

Influenza.—Influenza of the seasonal type became general throughout the Dominion in the winter of 1936. The death-rate of 0·94 per 10,000 represents a rise on the comparatively low rate of 0·74 in 1935.

Poliomyelitis.—As already stated, the close of the year was marked by an outbreak of acute poliomyelitis in Dunedin, which in the first quarter of 1937 spread comparatively slowly to other parts of the Dominion.

In view of this outbreak the time is opportune to review the history of poliomyelitis in New Zealand.

Prior to 1914 there is little information about the disease, and apparently it was present only in sporadic form. Since that date, however, there have been three major epidemics, those of 1915–16, 1924–25, and 1936–37. Two other periods of increased prevalence of the disease have occurred, the first between 1920 and 1922 and the second in 1932–33. During the intervening years the disease has never been entirely absent, but only a few sporadic cases have been reported in any one year.

The present outbreak began in Dunedin in the first week of December, 1936, a total of 81 cases and 6 deaths being reported during this month in the Otago-Southland Health District. These figures do not represent the full extent of the epidemic, for medical practitioners in Otago and Southland reported seeing many cases, particularly amongst children, of an obscure influenza-like condition which probably represented a minor phase of the disease.

The epidemic in Dunedin was of an explosive type, the notifications by weeks being as follows :—

Week ending 7th December	2
Week ending 14th December	16
Week ending 21st December	40

The measures which were taken by the Department to prevent the spread of the disease were as follows :—

(1) As soon as it became obvious that poliomyelitis in epidemic form was present in Dunedin, the public were notified of this fact. They were instructed as to the importance of obscure febrile attacks amongst children, and were advised in all such cases to seek medical advice.

(2) The medical profession were given early information as to the position. A memorandum which had been issued in connection with the epidemic of 1924–25 over the joint signatures of the then President of the New Zealand Branch of the British Medical Association and the Director-General of Health was brought up to date and a copy forwarded to every medical practitioner on the register. Such information as was available in regard to the use of nasal sprays and serum was also placed before the profession.

(3) The public were urged to keep children away from places of entertainment, and from public gatherings such as pictures, &c. The picture-theatre proprietors co-operated in a most generous way, and voluntarily agreed to the exclusion of children from picture-theatres throughout the whole of New Zealand.

(4) Schools throughout the whole of New Zealand were closed as soon as it was obvious that the disease was present in Dunedin in epidemic form.

(5) An early opportunity was taken to meet representatives of the New Zealand Branch of the British Medical Association, and to invite suggestions for the control of the epidemic. One valuable suggestion which was adopted was the appointment in each of the four main centres of medical practitioners with special knowledge of poliomyelitis and its treatment, who would be available for consultation with any general practitioner who wished their advice.

(6) Cases with few exceptions were admitted to hospital.

(7) In the early stages of the epidemic the incubation and isolation periods which were adopted were respectively fourteen days and six weeks. After some time these were reduced to ten days and four weeks, the principal reason being that Dunedin Hospital was becoming overcrowded with many mild and abortive cases which rapidly recovered and were free from clinical signs after a few days.

(8) Just before Christmas, when there was still considerable doubt as to the possible force of the epidemic, much prominence was given to the fact that cases were occurring in other parts of New Zealand which had close connection with Dunedin. In order to limit as far as possible the movements of people from Dunedin during the holiday season, restrictions were placed upon the exodus of children from Dunedin. The restrictions were not absolute, as in a limited number of cases, where there was no contact with known cases of poliomyelitis and the prospective travellers could show good and sufficient reason for wishing to leave Dunedin, permission was given them to do so.

Gradually, in the first quarter of 1937, the disease spread throughout New Zealand, so that practically no district escaped. The peak of the epidemic was in April, with 246 cases.

A full statement on the epidemic will appear in next year's report. In the meantime it can be recorded that from December, 1936, to the end of June, 1937, 819 cases, including 43 Maoris, were reported, with 39 deaths.

Lethargic Encephalitis and Cerebro-Spinal Meningitis.—Seven cases of the former disease (4 in 1935) and 12 of the latter (10 in 1935) were notified.

Puerperal Sepsis.—In 1936 there were 9 deaths from sepsis following childbirth, as compared with 8 such deaths in 1935. The deaths due to sepsis following abortion numbered 14 in 1936, as against 23 in 1935.

Whooping-cough and Measles.—Deaths from whooping-cough numbered 47, while those from measles were only 3.

Tuberculosis.—The death-rate from tuberculosis (all forms) was 4·56 per 10,000, representing a marked rise on the rate of 3·88 in 1935. On the available facts it is not possible to give an explanation of this rise. The same phenomenon, however, has been reported in parts of the United States of America, and the following extract from an article in the April, 1937, issue of the Statistical Bulletin of the Metropolitan Life Insurance Co. is quoted as being equally applicable to New Zealand :—

> " The question, then, arises as to whether the current status of the tuberculosis death-rate is an aftermath of the depression. Has there been an impairment in American vitality, which did not become manifest until the depression itself had lifted ? Public-health workers have feared that this very contingency might arise. It is certain that the unfavourable tuberculosis situation which now confronts the country has not been due to any abatement in the efforts toward tuberculosis control ; for there has been no let-down. It is equally clear that what is now called for is an intensification of the work of those responsible for protecting the public health—and more particularly, even greater concentration on tuberculosis. The record of the last twenty-five years in the attempt to control this disease has been so clear-cut and favourable that there should now be no hesitation in bringing the effort to a successful termination. But it will take years and much money and thought to do it. The present picture is an excellent corrective to any undue optimism which may have resulted from the rapid improvement in the tuberculosis situation in the last ten years."

An article on the progress of the campaign against tuberculosis in New Zealand contributed to the January issue of the Bulletin of the International Union against Tuberculosis, Paris, appears in the appendix of this report.

Hydatid Disease.—During the five-year period 1931–35, 511 cases of hydatid disease were treated in the public hospitals, while 78 deaths occurred in the Dominion over this same period. The prevalence of hydatid disease is a reproach to our farming community. In last year's report an account was given of the various steps which have been taken to educate the public about the risks of this disease and the methods of prevention. A further suggestion which is worthy of adoption is that statutory authority should be obtained for insisting on the regular administration of arecoline hydro-bromide to all dogs.

Goitre.—There is nothing new to report in connection with this disease except that steps have been taken to obtain details of all cases of goitre admitted to private hospitals. In this way our statistics will be made more complete, and additional information will be available as to endemic centres of the disease.

Cancer.—Here again there is little to report. The New Zealand Branch of the British Empire Cancer Campaign continues as a very live force in the control of cancer in this country. The president at the last annual meeting of the society outlined its activities in the following words :—

> " I think in general we may say that we have roused the public to some extent to realize that each and all are personally concerned in the cancer menace. We have stimulated Hospitals Boards, and we have in a short period raised up a large body of highly skilled and trained voluntary workers. We have at our cancer clinics treated with increasing success during the past seven years a total of 4,909 new cases (1,015 for 1936) involving about 16,000 (3,524 for 1936) attendances. We have supplied radium and reconditioned it, and taken

part in the issue of radium emanations. We have compiled statistics for research. We have had special treatment and supervision given to cancer patients where before they were often put aside to die. We have maintained a cancer research laboratory at Dunedin, and much useful work has been done. The investigation of cancer is like the gradual completion of a huge jig-saw puzzle of which little areas here and there have been filled together, but the full completion is still to be accomplished. The society has with the help of the Travis bequest established a radio-physics laboratory which is now to be removed from Wellington to Canterbury College, and which is invaluable for testing and safeguarding the methods used by deep-X-ray and radium for the treatment of cancer. Improvements in the use of radiation for treatment of cancer may remove to a large extent the fear of the knife which is a deterrent against sufferers seeking early advice and treatment."

The Department wishes to put on record its appreciation of the work of the society.

Venereal Diseases.—The tables appearing later in this report summarize the returns of treatment for venereal diseases at the four main centres. The consensus of opinion of medical officers in charge of V.D. clinics is that syphilis is on the decline. These opinions are supported by figures from other sources, including deaths from syphilis, locomotor ataxia, and general paralysis of the insane, and admissions to mental hospitals, of which the assigned cause was syphilis. Opinion is divided as to whether the increase in the number of attendances at clinics of patients suffering from gonorrhœa represents a real increase in this disease. It is possible that a better knowledge of the presence of the facilities for treatment may have led to their wider use. The arrangements which have been made for treatment of sailors in accordance with the International Agreement appear to be working smoothly, and it is satisfactory to record that the medical officers in charge of V.D. clinics have no reason to believe that infection is imported from overseas to any extent.

The need for better control of venereal diseases is realised by the Department, and for this purpose the revision of the present law is under consideration. The powers conferred by Act and regulations can be strengthened by elimination of known weaknesses.

Reports of Divisional Directors.

Public Hygiene.—Dr. Ritchie, in his report, supplies detailed vital statistics. He has also prepared comparative tables of a number of principal causes of death for England-Wales and New Zealand. Another feature of his report is a statement on administration of the Food and Drugs Act.

School Hygiene.—The Acting Director, Dr. Elizabeth Gunn, in her report, covers a wide range of subjects. Matters dealt with include medical examination of entrants to the teaching profession, the supervision of mentally backward children, the supervision of contacts with cases of pulmonary tuberculosis, the medical examination of pre-school children, the milk-in-schools scheme, and health camps. It is encouraging to note that parents are taking an increasing interest in the medical examination of their children, and apparently appreciate this service. Much interest has been taken in nutrition. The percentage of subnormal nutrition amongst school-children has fallen from 6·65 per cent. in 1935 to 4·31 per cent. in 1936.

Hospitals.—The amendment to the Pensions Act has enabled Boards to show substantial savings in charitable-aid expenditure, but this has been more than offset by the increases in institutional costs mainly due to a reduction in working-hours and increases in rates of pay necessitated by the Government's industrial legislation.

Increase in staffs due to reduction in working-hours has also required Boards to take steps to provide further accommodation, particularly for the nurses.

The improvement in financial conditions generally is being manifested in the collection of patients' fees, but, owing principally to increases due to the causes referred to above, the financial requirements of Hospital Boards to be met by levy and subsidy are showing a substantial increase over those for the previous year.

Full statistical and financial information in regard to hospitals is published as a special appendix to this report.

Nursing Division.—The report of the Director, Miss M. Lambie, draws attention to the steps which have been taken by the Department to improve the hours and working-conditions of nurses employed in public hospitals. Continued attention also has been devoted to improving the health of nursing staffs.

Maternal Welfare.—Dr. Paget reviews the steps which have been taken to promote maternal welfare in New Zealand. In view of the public anxiety which was displayed about the abortion problem in New Zealand, the Government appointed a Committee to inquire into the matter. The personnel of the Committee was—D. G. McMillan, M.B., Ch.B (N.Z.), M.P., Chairman; Mrs. Janet Fraser; Sylvia G. Chapman, M.D., D.G.O. (T.C.D.); T. F. Corkill, M.D. (Edin)., M.R.C.P. (Edin)., M.C.O.G.; and T. L. Paget, L.R.C.P. (Lond.), M.R.C.S. (Eng.).

The report of the Committee has now been published. The Committee is convinced that the induction of abortion is exceedingly common in New Zealand, and that it has definitely increased in recent years. It is estimated that some 6,000 abortions occur every year, and of these some 4,000 are criminally induced either through the agency of criminal abortionists or by self-induction. The report further states that deaths from septic abortion have greatly increased in recent years, and now constitute one-quarter of the total maternal mortality; in some urban districts they amounted to nearly half of the total maternal mortality. New Zealand has, according to comparative international statistics, one of the highest death-rates from abortion in the world.

In discussing the underlying causes, the Committee, after taking evidence from witnesses representing all sections of the community, has formed the conclusion that the main causes for this resort to abortion are—(1) Economic and domestic hardship; (2) changes in social and moral outlook; (3) pregnancy among the unmarried; (4) in a small proportion of cases, fear of childbirth. These causes are fully discussed in the report.

The same Committee, with two additional members—namely, Mrs. D. M. Hutchinson (Society for Protection of Women and Children) and Mrs. Kent-Johnston (Friends of St. Helens Hospital Society)—was appointed by the Government to inquire into the maternity services of New Zealand. This Committee is at present taking evidence.

Dental Hygiene.—The Director reports a year of exceptional activity. This service is being extended as rapidly as conditions permit. The total number of operations performed by the staff was 725,069, an increase of 50,673 on the previous year. The number of children who received systematic treatment was 89,803 (87,738 in 1935). A feature of the report is an account of the dental condition and diet of the Maoris of Maungapohatu, which appears in the appendix. Among other matters mentioned in the report are the training of dental nurses, the provision of a hostel for student dental nurses, prophylactic filling, and the operation of the school dental clinic contribution system.

Maori Hygiene.—The Maori vital statistics compare unfavourably with the European. In some diseases the Maori death-rate is ten times that of the European—*i.e.*, tuberculosis and enteric fever. There is however, one figure which compares more than favourably with the European, that is the birthrate. In 1936 the European birth-rate was 16·64 per 1,000, while the Maori rate was 43·79.

The Maori population at the 1936 Census was 82,326. The death-rate was 19·32 (19·29 in 1935). The infant-mortality rate was 109·92 per 1,000 live births (103·35 in 1935). The Maori birth-rate was 43·79 per 1,000 population, as against 43·34 for 1935. The excess of births over deaths gives the Maori race the satisfactory natural increase of 2·43 per cent. The death-rate for all forms of tuberculosis was 39·69 per 10,000 of population (pulmonary, 29·32; other forms, 10·37). The typhoid fever death-rate of 3·26 per 10,000 showed an increase on the previous year's rate of 2·53. The maternal-mortality rate was 5·51, which represents a decrease over the figure for 1935, which was 7·38 per 1,000 live births.

During the year a conference on the Health and Economic Position of the Maori Race and Post Primary Education was held at Wellington, there being an attendance of about sixty delegates, including representatives from the Education, Native, and Health Departments. Among the resolutions passed were the following:—

(1) That this conference is in general agreement with the scheme for the provision of medical services for Maoris as outlined by the Director-General of Health and other officers of the Department, and represents to the Government that an extension of these is required to deal successfully with the diseases to which the race is susceptible under present conditions.

(2) Realizing that the health and physical welfare of the Maori race is inextricably bound up with the question of housing, this conference agrees with the Government on the necessity of adopting a housing policy for the Maori people, and recommends that any organization set up to deal with the matter should co-opt the services of the Departments most closely associated with the Maori people—namely, the Health, Education, and Native Affairs Departments.

(3) That in adapting the curriculum to the needs of the individual and society, the following objectives be considered necessary:—

(*a*) Knowledge of health and hygiene, including practical hygiene and first aid.

(*b*) Knowledge of an adequate and comfortable domestic life.

(*c*) Knowledge of the resources and opportunities, particularly in agriculture, of the local physical environment from which a community must obtain its living.

(*d*) Knowledge, in a broad sense, of the art of recreation, in order to develop a personality self-controlled and poised.

(*e*) Knowledge of social and civic responsibilities.

To carry out the spirit of these resolutions so far as they relate to this Department, seven additional district nurses have been appointed (making a total of thirty-six) to work amongst the Maori people. In the appointment of six additional Health Inspectors the aim has been to select men with a good knowledge of Maori mentality.

The reports of medical officers working in this field show the difficulties with which they are confronted.

In the South Auckland District, Dr. Turbott, Medical Officer of Health, has found the Maoris very backward, and he is endeavouring to stimulate among them an interest in health education. In the East Coast Health District the same officer reports a more satisfactory state of the Maori health due largely to preventive measures, such as routine inoculation of Native school-children against typhoid fever, the immediate inoculation of typhoid-fever contacts, special tuberculosis follow-up work, and the greatly improved condition in regard to crude sanitation. A report by Dr. Turbott showing how tuberculosis morbidity and mortality can be reduced by the correct educational attack appears in the appendix to this report.

General.

Milk-in-schools Scheme.—A scheme to provide milk for school-children was inaugurated in the beginning of 1937. The object of the scheme is to provide a daily ration of one half-pint of milk free of cost to parents. This ration is available to all children attending kindergartens and primary schools, both public and private, and also to children attending post-primary schools if they desire to participate in the scheme. It was not possible to have all districts catered for at the commencement

of the school-year, but the scheme is now operating in the main centres of population, and its extension is being undertaken as rapidly as possible. Approximately some 80,000 children at date of writing (June, 1937) are receiving milk under this scheme.

In view of the importance of ensuring that the milk-supply is safe, it has been laid down that the source of the supply must in all cases be approved by the Department of Agriculture and this Department. The treatment and distribution of the milk also is carried out under the strict supervision of the Department. Wherever possible pasteurization is being carried out, and the milk delivered in bottles, with straws for drinking.

A great deal of responsibility is being reposed in the various committees in opening up negotiations for reliable supplies, for proper treatment, and for distribution. The cost of the milk will be paid by the Government, and will be based on the butterfat value of milk plus adjustments for loss of by-products, cost of treatment and distribution, and the necessity for keeping up supplies over the winter months. These factors can be worked to a close figure, and in this connection an officer experienced in such work is engaged in visiting centres to assist in the negotiations and advise on the settling of agreements to local conditions. In view of the wealth of testimony as to the incalculable value of milk to the growing child the benefit of such a measure is most obvious.

Health Camps.—In July, 1936, a conference was held in Wellington which was attended by delegates representing health camp organizations in various parts of New Zealand. The meeting was held with the objects of organizing the various existing bodies on a proper basis, and of providing the necessary co-ordination between such bodies and the Central Government. A working-scheme was evolved and a foundation laid for future development of the work on sound lines.

Early in 1937 the Government decided that the New Zealand Memorial to King George V should be a national fund for the establishment of permanent health camps. The generous response of the public to this appeal, with the Government subsidy, has produced a sum of approximately £170,000 for this purpose. In 1936–37 the finances of the camps also benefited to the extent of some £14,000 by the sale of the Christmas health stamps and donations raised at the same time.

Legislation.—The Dentists Act, 1936, makes provision for the registration and control of dentists. For this purpose a Dental Council has been established, which will be the registering authority, and will exercise certain disciplinary powers for practising dentists.

The Hospitals and Charitable Institutions Amendment Act, 1936, makes Hospital Boards liable in damages where there is negligence in the treatment of a patient, whether this negligence occurs in the course of purely professional or other duties of a medical practitioner, dentist, matron, nurse, midwife, attendant, or other person employed or engaged (whether in an honorary capacity or not) by the Board. In the absence of such provision a patient suffering from negligence on the part of a nurse or other person employed by the Hospital Board had in many cases no really effective remedy at law. This legislation does not affect the present right of a person to recover damages from the person primarily liable—namely, doctor or nurse—but provides an additional or alternate remedy only. The Act also gives Hospital Boards authority to make grants or allowances to persons who while employed in nursing duties, or within twelve months after being so employed, contract pulmonary tuberculosis. The number of cases in which it is found that nurses in general hospitals contract pulmonary tuberculosis points to the necessity for such a provision. Power is also given to control the hours of duty of nurses in private hospitals, and to make regulations for the protection of their interests.

Biological Standardization.—The increasing use of biological products in the prevention and treatment of disease, and the varying standards in use in different countries, led the League of Nations, through its Medical Committee, to investigate the position not only of biological products, but also of certain therapeutic substances, and where possible to adopt international standards, which it invited the competent authorities to make effective. New Zealand adopts these international standards immediately they are brought into force in Britain, by amending the regulations under the Sale of Food and Drugs Act so as to include any published alteration or additions to the British Pharmacopœia. The question of the provision of facilities for the biological testing of substances where the international standard has been adopted is at present under consideration in New Zealand.

Health Education.—This has been continued along similar lines to what was indicated in last year's report. The usual avenues of publicity—the press, public addresses, radio, &c.—were employed in acquainting the public with health matters. Inspectors of Health and School District and Dental Nurses touch a wide field in health educational work. Numerous leaflets have been distributed on such topics as Health Hints, Hints on Diet, Care of the Teeth, The School Lunch, &c. The booklet "The Expectant Mother and the Baby's First Month" was revised by officers of this Department and the Plunket Society and published for free distribution. Further reference to the subject of health education will be found in some of the divisional reports.

Boards associated with the Department.—The various Boards associated with the Department—namely, the Board of Health, Medical Council, Plumbers Board, Opticians Board, Masseurs Board, Nurses and Midwives Registration Board—have continued their work during the year. Reference to the work of the last-mentioned Board will be found in the report of the Director, Division of Nursing. The Department acknowledges its indebtedness to the members of these Boards for their able service.

Staff.—I regret to record the death of Mr. F. B. Gardiner, a Senior Inspector of Health, who rendered many years of loyal and capable service to the Department.

Additions to Staff.—Three School Medical Officers and five Dental Officers were appointed. In addition, five School Nurses, seven District Nurses, and six Health Inspectors joined the Department.

In conclusion, I wish to express my thanks for support rendered me by officers during the year.

M. H. WATT, Director-General of Health.

PART II.—PUBLIC HYGIENE.

I have the honour to submit my annual report for the year ended 31st March, 1936.

SECTION 1: VITAL STATISTICS.

(Exclusive of Maori unless otherwise stated.)

POPULATION.

The mean population of the Dominion for 1936 was estimated to be 1,492,344. This total represents an increase over the corresponding figure for the previous year of 6,520, or a percentage increase of population of 0·44.

BIRTHS.

The births of 24,837 living children were registered in the Dominion during 1936, as against 23,965 in 1935. The birth-rate for the year was 16·64 per 1,000 of mean population. The general course of the birth-rate during the last five years is shown in the following table:—

Births (Number and Rate) in New Zealand, 1932–36.

Year.	Total Number of Births registered.	Birth-rate per 1,000 of Mean Population.
1932	24,884	17·09
1933	24,334	16·59
1934	24,322	16·47
1935	23,965	16·13
1936	24,837	16·64

This is the first occasion since 1920 that an increase instead of a decrease in the rate has been recorded. The rate is, however, much too low for the future to be viewed with equanimity. The natural increase (excess of births over deaths) was 11,781 persons, or only 0·79 per cent. of the total population, as compared with an increase of 0·80 per cent. in 1935.

Loss during the year in the migration balance accounts for the increase in population being only 0·44 per cent., a decrease of 0·16 per cent. on the figure for 1935.

DEATHS.

The deaths registered during the year numbered 13,056, an increase of 839 over the figure for 1935 (12,217).

Crude Death-rates.

Year.	Crude Death-rate per 1,000 Mean Population.	Year.	Crude Death-rate per 1,000 Mean Population.
1931	8·34	1934	8·48
1932	8·02	1935	8·22
1933	7·98	1936	8·75

Deaths from All Causes.

The total number of deaths was 13,056, the crude death-rate per 1,000 of mean population being 8·75. This is the highest crude death-rate since 1929, when the rate was also 8·75 per 1,000 mean population.

As the age and sex constitution of the population is constantly changing, comparison of rates may be misleading, except over a very short period of time. Standardization overcomes this difficulty, and renders comparisons possible over a long period of years. In the table below are given the number of deaths, the crude death-rate, and the standardized death-rate for the past six years. It will be noticed that whilst the crude death-rate for 1936 is the highest for the years given, the standardized rate is slightly lower than that for 1934, although considerably higher than that for 1935. The standardized rate here shown is based on the age and sex distribution of the population of New Zealand at the time of the census taken in 1911. The increase is further commented upon in the notes on the principal causes of death.

Crude and Standardized Death-rates, 1931–36.

Year.	Number of Deaths.	Crude Death-rate.	Standardized Death-rate.
1931	12,047	8·34	7·31
1932	11,683	8·02	6·89
1933	11,701	7·98	6·77
1934	12,527	8·48	7·08
1935	12,217	8·22	6·76
1936	13,056	8·75	7·06

Still-births.

A still-born child is defined as one "which has issued from its mother after the expiration of the twenty-eighth week of pregnancy, and which was not alive at the time of such issue." Still-births have been compulsorily registrable in New Zealand since March, 1913. In 1936 still-births numbering 732 were registered, a decrease of 6 on the figure for the previous year.

Still-births (Number and Rate) in New Zealand, 1932–36.

Year.	Total Number of Still-births registered.	Rate of Still-births per 1,000 Live Births.
1932	746	30·0
1933	722	29·7
1934	687	28·3
1935	738	30·8
1936	732	29·5

(NOTE.—Still-births are not included, either as births or deaths, in the various numbers and rates given elsewhere in this report.)

THE PRINCIPAL CAUSES OF DEATH.

The following table gives the main causes of death during the year and the actual number of deaths therefrom, and also the death-rates per 10,000 of mean population for each of the last five years :—

Cause.	1936.		1935.	1934.	1933.	1932.
	Number.	Rate.	Rate.	Rate.	Rate.	Rate.
Heart Disease (all forms)	3,646	24·43	23·27	22·67	21·12	20·15
Cancer	1,762	11·81	11·15	11·50	11·07	10·11
Violence	864	5·79	5·24	5·71	5·61	6·37
Chest Disease (total)	877	5·88	4·79	5·05	4·42	5·23
Pneumonia	401	2·69	1·61	1·73	1·65	1·91
Pneumonia (secondary to influenza), Whooping-cough, and Measles	102	0·68	0·22	0·38	0·34	0·35
Bronchitis	202	1·35	1·34	1·47	1·21	1·42
Broncho-pneumonia	241	1·61	1·62	1·47	1·23	1·55
Tuberculosis (all forms)	680	4·56	3·88	4·20	4·16	4·22
Kidney or Bright's Disease	591	3·96	3·55	3·79	3·82	3·98
Apoplexy or Cerebral Hæmorrhage	760	5·09	4·85	4·94	4·62	4·20
Diseases of the Arteries	446	2·99	2·95	2·57	2·80	3·05
Senility	381	2·55	2·38	3·09	2·30	3·01
Diabetes	238	1·59	1·52	1·69	1·56	1·57
Hernia and Intestinal Obstruction	99	0·66	0·67	0·65	0·76	0·65
Diseases and accidents of childbirth (maternal mortality)	92	0·62	0·68	0·80	0·74	0·69
Appendicitis	119	0·80	0·72	0·78	0·74	0·69
Diarrhœa and Enteritis	60	0·40	0·55	0·39	0·41	0·47
Epilepsy	49	0·33	0·29	0·35	0·28	0·28
Common Infectious Diseases.						
Influenza (all forms, including Pneumonia)	140	0·94	0·74	1·26	0·70	0·46
Diphtheria	20	0·13	0·22	0·18	0·18	0·27
Whooping-cough	47	0·32	0·28	0·27	0·12	0·30
Scarlet Fever	8	0·05	0·05	0·05	0·03	0·04
Typhoid	8	0·05	0·07	0·01	0·04	0·05
Measles	3	0·02	0·01	0·31	0·12	0·05

As the percentage of persons in the later decades of life is steadily increasing in New Zealand, and as it is in these later decades that the death-rate is highest, the crude death-rates given above do not indicate the true trend of the death-rate. It is not safe to use such rates for comparative purposes over a period of years, nor for comparison with the death-rates of other countries. Only one country (England and Wales) publishes standardized rates for a number of causes of death, and therefore it is the only country with which true comparisons may be made. For this purpose standardized rates have been calculated for a number of the causes of death in New Zealand for the sexes separately. The standardized rates given in the table below are based upon the age distribution of persons of undistinguished sex in the general population of England and Wales in 1901.

The rates shown for the two sexes and for different years are directly comparable one with another, and also with those given for England and Wales. The latter have been abstracted from the published returns of the Registrar-General for England and Wales.

It is to be expected that in New Zealand, with its favourable climate and the absence of huge aggregations of population in cities and of large industrial areas, the general death-rate should be much lower than in England and Wales. It will be noticed, however, that in regard to some of the causes of death shown, New Zealand has little, if any, superiority, and in some cases has a higher rate.

A survey of the table will show that more than half the difference in the rates for each sex is accounted for by lower rates in New Zealand for diseases of the respiratory system, the common infectious diseases, and tuberculosis of the respiratory system.

STANDARDIZED DEATH-RATES PER MILLION FROM ALL CAUSES AND SOME OF THE PRINCIPAL CAUSES OF DEATH. (STANDARD: POPULATION OF ENGLAND AND WALES, 1901).

International List Number.	Cause of Death.	Country.	Males.						Females.					
			1931.	1932.	1933.	1934.	1935.	1936.*	1931.	1932.	1933.	1934.	1935.	1936.*
	All causes	E. and W.	11,281	10,896	10,920	10,428	10,167	..	9,019	8,730	8,809	8,328	8,036	..
		N.Z.	8,007	7,418	7,450	7,795	7,410	7,723	6,784	6,580	6,256	6,559	6,243	6,540
90–95	Heart-disease (all forms)	E. and W.	1,845	1,848	1,896	1,897	1,949	..	1,592	1,560	1,616	1,565	1,597	..
		N.Z.	1,752	1,711	1,795	1,894	1,913	2,001	1,453	1,522	1,523	1,594	1,556	1,538
45–53	Cancer	E. and W.	1,034	1,052	1,035	1,046	1,058	..	974	966	973	974	959	..
		N.Z.	842	821	858	865	845	818	838	784	864	889	810	891
163–198	Violence	E. and W.	693	710	721	705	669	..	290	280	293	297	287	..
		N.Z.	1,119†	893	759	821	706	784	379†	280	279	231	252	249
104–114	Diseases of the respiratory system	E. and W.	1,704	1,426	1,442	1,313	1,225	..	1,242	1,055	1,043	897	831	..
		N.Z.	627	633	572	616	597	693	502	452	399	450	420	498
115–129	Diseases of the digestive system	E. and W.	690	687	684	654	659	..	494	511	507	495	469	..
		N.Z.	406	367	363	408	401	377	316	332	308	282	311	326
23–32	Tuberculosis (all forms)	E. and W.	976	913	901	832	774	..	772	727	707	657	610	..
		N.Z.	419	406	387	411	384	425	397	407	393	381	333	411
23	Tuberculosis (respiratory system)	E. and W.	780	718	729	669	627	..	601	562	559	512	486	..
		N.Z.	328	315	398	308	298	326	323	312	291	297	277	311
30–132	Nephritis (acute and chronic)	E. and W.	325	319	292	296	296	..	255	255	245	237	241	..
		N.Z.	347	307	325	310	276	313	317	342	291	282	268	283
97	Arterio-sclerosis	E. and W.	412	412	409	398	391	..	275	284	281	277	278	..
		N.Z.	197	202	167	172	168	172	226	228	192	166	189	175
82	Cerebral hæmorrhage apoplexy, &c.	E. and W.	436	427	404	398	396	..	421	418	399	397	399	..
		N.Z.	300	277	352	334	306	314	436	411	388	439	433	444
162	Senility	E. and W.	290	288	260	237	248	..	292	288	267	242	245	..
		N.Z.	248	257	214	266	202	195	242	234	150	218	158	177
59	Diabetes mellitus	E. and W.	88	92	92	91	89	..	111	112	114	115	117	..
		N.Z.	105	92	106	84	78	94	161	166	142	178	153	141
199–200	Ill-defined diseases	E. and W.	31	30	29	25	28	..	19	19	18	18	16	..
		N.Z.	47	37	24	19	20	8	21	11	10	6	7	1
	Common Infectious Diseases—													
1 and 2	Enteric fever	E. and W.	7	7	6	4	4	..	5	5	4	4	4	..
		N.Z.	7	4	7	..	6	4	6	10	2	1	8	6
7	Measles	E. and W.	130	133	76	151	54	..	114	123	21	139	52	..
		N.Z.	..	..	12	42	2	3	..	..	16	36	..	2
8	Scarlet fever	E. and W.	16	16	23	31	18	..	20	20	26	34	21	..
		N.Z.	1	1	2	5	3	8	15	18	5	8	10	8
9	Whooping-cough	E. and W.	83	98	76	67	54	..	107	127	100	94	73	..
		N.Z.	29	33	16	18	35	39	34	45	16	56	42	51
10	Diphtheria	E. and W.	91	77	88	134	120	..	90	83	92	144	123	..
		N.Z.	41	36	24	25	31	14	51	29	22	21	27	21
11	Influenza	E. and W.	304	263	463	122	152	..	265	237	401	91	120	..
		N.Z.	134	42	69	126	82	93	145	53	63	100	55	89
16	Acute poliomyelitis	E. and W.	4	6	8	5	5	..	3	5	5	4	5	..
		N.Z.	6	19	9	..	..	4	2	2	3	3	2	4

* Figures for England and Wales not yet available

† Year of the Napier earthquake.

Heart-diseases (all Forms).—In the case of males, deaths from all forms of heart-disease increased by 142, from 1,940 in 1935 to 2,082 in 1936. There was an increase of 8 deaths under forty years of age, of 67 between forty and sixty years, and of 67 above the age of 60 years.

The standardized rate indicates that after allowance has been made for the changing age constitution of the male population there has been a definite increase, and this may be a reflection of the stress and strain of the recent depression.

Females show a rise of 45 in the number of deaths, but a slight decrease in the standardized death-rate.

It will be seen from the table given above that the death-rates from all forms of heart-disease are very similar in England and Wales and in New Zealand, the average death-rates for the five years 1931–35 being in the case of males only 3·9 per cent. and females 3·5 per cent. lower for New Zealand than those for England and Wales.

Cancer.—In 1936 there was a decrease of 11 deaths from cancer in the case of males (866 deaths in 1935, 855 in 1936), but a marked increase in the case of females (790 deaths in 1935, 907 in 1936). The standardized rate for males dropped by 27 per million, but for females increased by 81 per million. The female standardized rate for 1934 was, however, only 2 per million below that for 1936.

Except for males during the "eighties" and the "nineties" of last century, the New Zealand rates for the sexes separately have always been considerably below those for England and Wales.

Another feature of the rates shown in the above table is that whilst in England and Wales the male standardized rate is considerably above the female rate, in New Zealand the two rates are approximately the same, the average for the five years 1931–35 showing a male excess of only 9 per million.

Tuberculosis (all Forms).

Year.	Number of Deaths from Tuberculosis.	Death-rate from Tuberculosis per 10,000 of Mean Population.	Year.	Number of Deaths from Tuberculosis.	Death-rate from Tuberculosis per 10,000 of Mean Population.
1931	617	4·27	1934.. ..	621	4·20
1932	615	4·22	1935.. ..	576	3·88
1933	611	4·16	1936.. ..	680	4·56

Of the 680 deaths from tuberculosis last year 540 (= 3·62) were assigned to pulmonary tuberculosis, and 140 to other forms of the disease.

Other Forms of Tuberculosis.—The 140 deaths last year from other forms of tuberculosis were distributed as follows:—

Tuberculosis of the meninges and central nervous system	51
Tuberculosis of intestines and peritoneum	21
Tuberculosis of vertebral column	10
Tuberculosis of bones and joints	6
Tuberculosis of lymphatic system	2
Tuberculosis of genito-urinary system	18
Tuberculosis of other organs	1
Disseminated tuberculosis	31
	140

Tuberculosis of the Respiratory System.—The year 1936 witnessed a setback regarding this form of tuberculosis, the number of deaths (540) being 69 more than in 1935. This is the highest number of deaths recorded since 1928 (569), and the death-rate per 10,000 of mean population (3·62) is higher than in any year since 1930 (3·71). Fluctuations in the number of deaths and in the death-rate occur from year to year, due to the smallness of our population, but it is many years since a fluctuation of this magnitude occurred. To what extent the rise experienced this year is due to the conditions existing as a result of the recent depression it is impossible to gauge with accuracy, but it is of interest to note that provisional mortality reports for the United States for 1936 indicated that the decided downward swing in the trend of this disease had been checked—at least temporarily.

Tuberculosis other than of the Respiratory System.—Deaths from other forms of tuberculosis increased by 35, from 105 in 1935 to 140 in 1936. The latter figure is, however, only 10 greater than in 1934 and 5 greater than in 1933. Deaths from tuberculosis of the meninges and central nervous system increased by 11, of the genito-urinary system by 11, and disseminated tuberculosis by 13.

The death-rate for each of the various forms of tuberculosis grouped under this heading fluctuates markedly from year to year. In 1936 the increase in deaths from the two chief forms—disseminated tuberculosis and tuberculosis of the meninges and central nervous system—accounted for approximately 70 per cent. of the increase. The type of bacillus present in these two conditions is in the great majority of cases the human type, and the increase during 1936 must therefore be closely associated with the increase in tuberculosis of the respiratory system, which is almost, if not wholly, due to the human type of bacillus. The same association was present during and following the war-period.

Whilst the role of the bacillus of the bovine type as a cause of suffering and death cannot be ignored, it must be considered the lesser factor. More marked improvement is to be expected from an intensification of the campaign against the human type of bacillus, the reservoir of which is to be found in those suffering from tuberculosis of the respiratory system.

Common Infectious Diseases.—New Zealand has been particularly fortunate during the past several years in the absence of serious epidemics, with a consequent low incidence of deaths from these diseases. The comparisons shown in the table given above cannot therefore be taken as indicating the relative positions of the two countries in regard to the diseases shown. The only serious epidemic experienced in 1936, acute poliomyelitis, commenced at the end of the calendar year, and therefore does not appear to any but a minor extent. Further comment on this epidemic is made later in this report.

Infant Mortality: 769.

The infant-mortality rate for 1936 was 30·96 per 1,000 live births, the lowest ever experienced.

Infant Mortality in New Zealand, 1930–36 (per 1,000 Live Births).

Year.	Under One Month.	One Month and under Twelve Months.	Total under Twelve Months.	Year.	Under One Month.	One Month and under Twelve Months.	Total under Twelve Months.
1930 ..	24·03	10·45	34·48	1934 ..	22·86	9·25	32·11
1931 ..	22·69	9·46	32·15	1935 ..	22·03	10·23	32·26
1932 ..	21·30	9·92	31·22	1936 ..	22·31	8·65	30·96
1933 ..	22·81	8·79	31·64				

Analysis of Deaths of Infants under One Month of Age, 1936.

The following table gives the causes of these deaths during the year:—

Cause of Death.	Under One Day.	One Day and under One Week.	One Week and under Two Weeks.	Two Weeks and under Three Weeks.	Three Weeks and under One Month.	Total.
Diphtheria		..	..	..	..	..
Whooping-cough	..	..	1	..	1	2
Influenza	..	..	1	..	2	3
Syphilis	..	..	..	..	..	..
Convulsions	..	3	..	..	..	3
Broncho-pneumonia	..	2	..	..	4	6
Pneumonia	..	1	..	..	..	1
Diarrhœa and enteritis	..	..	..	..	..	..
Congenital malformations	24	43	14	8	6	95
Congenital debility	7	5	4	1	1	18
Injury at birth	19	39	8	1	..	67
Premature birth	153	74	15	7	2	251
Other diseases of early infancy	21	46	12	2	1	82
Accidental mechanical suffocation ..	..	..	1	..	..	1
Other causes	3	6	9	7	..	25
Totals, 1936	227	219	65	26	17	554
Totals, 1935	196	233	54	35	10	528

SECTION 2.—NOTIFIABLE DISEASES.

Attached are four tables showing the notifications of infectious and other notifiable diseases in the Dominion for the year 1936. Tables A, B, and C, and unless otherwise stated the comments and tables in this section, deal with Europeans only.

General.

During the past five years New Zealand has been remarkably free from epidemics of notifiable diseases, the highest number of notifications received in any of these years being 3,715 in 1932.

In 1936 notifications numbered 3,652, an increase of 303 over those for the previous year.

Increases occurred in the following common infectious diseases, the increase being given in parentheses: Scarlet fever (289), pulmonary tuberculosis (126), poliomyelitis (79) pneumonic influenza (17), erysipelas (39), hydatids (16), puerperal fever (14), and bacillary dysentery (44).

The most marked decreases were diphtheria (234) and puerperal fever following abortion or miscarriage (55).

Tables and comments regarding certain of the more common infectious diseases are given below :—

(*a*) *Scarlet Fever.*

Year.	Number of Notifications.	Deaths.		
		Number.	Rates per 10,000 of Mean Population.	Case-fatality Rate per Cent.
1931	1,304	11	0·08	0·84
1932	829	6	0·04	0·72
1933	783	4	0·03	0·51
1934	762	8	0·05	1·05
1935	863	8	0·05	0·93
1936	1,152	8	0·05	0·69

The year 1928 was the " peak " year of the last epidemic experienced. The number of notifications declined rapidly until 1934, and then began to rise. The figure for 1936 is the highest since 1931. During the early part of the present year (1937) the number of notifications, contrary to expectations, decreased, an effect which may have had some association with the restrictions imposed on children during the epidemic of poliomyelitis.

(*b*) *Diphtheria.*

Year.	Number of Notifications.	Deaths.		
		Number.	Rates per 10,000 of Mean Population.	Case-fatality Rate per Cent.
1932	802	40	0·27	4·99
1933	963	27	0·18	2·80
1934	436	26	0·18	5·96
1935	747	33	0·22	4·42
1936	513	20	0·13	3·90

The incidence of diphtheria has been low for the past five years, and the number of notifications (513) is the second lowest figure recorded since 1902, the earliest year for which records are available. Another interesting feature of the returns is the remarkably low incidence of the disease in the South Island. The present position cannot be expected to continue indefinitely. The Dominion is apparently experiencing the trough of an epidemic wane, and a rising tendency is to be expected within a short period of years.

(*c*) *Poliomyelitis.*

Although only the early stages of the recent epidemic came within the period under review preliminary figures for the period December, 1936, to the end of June, 1937, are given below. These are subject to revision. A more detailed survey of the epidemic will be furnished in next annual report. On this occasion the epidemic commenced explosively in Dunedin in December, and declined in January and February, the cases with a few exceptions being confined to the southern portion of the South Island. In March cases began to appear more frequently in the North Island, and early in April the disease was widespread throughout the Dominion. The epidemic reached its peak in the latter part of April and then began to decline.

Previous epidemics have always commenced in December or January, rapidly risen to a peak in February or March, and then declined. The abnormal course of the recent epidemic is probably due to the resistance offered to its spread by the restrictions imposed.

Of the 819 cases reported during the seven months, 234 were of the " abortive " type—that is, the condition subsided without causing any apparent involvement of the motor cells of the central nervous system. Five hundred and eighty-five cases showed muscle weakness or paralysis of various groups of muscles. Many of these have completely recovered already, but it is too early to make any statement as to the numbers which will suffer from some permanent disablement. The incidence of reported cases in both the European and Maori populations was 0·52 per 1,000.

The number of deaths reported totalled 39, a case fatality rate of 4·8 per cent. of all cases reported, or 6 per cent. of the cases showing paresis or paralysis. This rate is markedly lower than those recorded in 1916 and 1925, but as the epidemic has not yet completely subsided accurate comparisons cannot yet be made.

Of the 392 cases reported from the South Island, 26 ended fatally, a case fatality rate of 6·6 per cent. The rate becomes 9·8 per cent. if only the 264 cases showing some evidence of paralysis are considered. In the North Island there were 427 cases, of which 321 showed paralytic symptoms. The case fatality rate per cent. of all cases in the North Island was 3·0, and of those with symptoms of paralysis was 4·1.

The popular name for this disease, "Infantile Paralysis," indicates that in the past the disease was one which particularly affected children in the early years of life. Such was the case in the 1925 epidemic, but the tendency both in New Zealand and in some overseas countries appears to be for the older age-groups to be attacked more frequently. From the appended table it will be seen that, whereas 55·3 per cent. of the reported cases in 1925 were children under five years of age, the percentage of cases in this period of life in the recent epidemic was only 27·4 per cent. In the two tables given below both European and Maoris are included.

Acute Poliomyelitis.

Table showing percentage of recorded cases in each age-group for the 1925 epidemic and for preliminary figures December, 1936, to June, 1937:—

Age-group.	1925.	1936–37 (All Cases).	1936–37 (Paralytic Cases).
Under 1 year	5·3	1·6	1·7
1 year and under 5 years ..	50·0	25·8	29·6
5 years and under 10 ,, ..	23·6	32·5	29·4
10 ,, 15 ,, ..	9·9	19·5	17·6
15 ,, 20 ,, ..	5·5	9·0	9·6
20 years and over	5·7	11·6	12·1

Table showing notifications of acute poliomyelitis by months and health districts for period December, 1936, to June, 1937:—

—	North Auckland.	Central Auckland.	South Auckland.	Thames-Tauranga.	Taranaki.	East Cape.	Wanganui-Horowhenua.	Wairarapa-Hawke's Bay.	Central Wellington.	Nelson-Marlborough.	Canterbury.	West Coast.	Otago.	Southland.	Totals.
December	..	..	..	..	..	..	..	..	1	..	3	..	78	3	85
January	..	8	2	..	1	..	..	..	1	..	15	..	39	3	69
February	..	..	..	..	..	..	..	1	2	..	16	2	20	12	53
March	..	..	..	9	1	5	6	13	2	1	28	3	23	14	105
April	4	13	23	17	21	24	23	21	34	3	35	10	14	4	246
May	6	16	23	5	11	6	21	8	19	1	35	3	4	3	161
June	9	18	13	3	10	5	11	3	8	..	11	2	3	4	100
Totals	19	55	61	34	44	40	61	46	67	5	143	20	181	43	819

(*d*) *Pulmonary Tuberculosis.*

Year.	Number of Notifications.	Deaths.	
		Number.	Rates per 10,000 of Mean Population.
1931	1,109	501	3·47
1932	904	488	3·35
1933	890	476	3·24
1934	824	491	3·32
1935	808	471	3·17
1936	934	540	3·62

Infectious Diseases amongst Maoris.

Table D attached gives the number of notifications of infectious disease received for members of the Maori race. These figures are not included in the European figures, as a large number of cases amongst Maoris are missed, due to the fact that a large proportion of Maoris fail to obtain medical assistance when they become ill. Of the 468 notifications received, 214, or over 45 per cent. of the total, were of pulmonary tuberculosis, a disease to which the Maori is very susceptible. The next disease in order of importance of the number notified is typhoid fever, of which disease 134 cases were notified. The prevalence of these diseases is due, for the most part, to their lack of sanitation and the ease with which infection can and does spread. The only other diseases to reach double figures were influenza, puerperal fever, diphtheria, and bacillary dysentery.

Sale of Food and Drugs Act.

The administration of this Act and its regulations is proceeding smoothly, and a wide range of samples has received attention.

The number of samples taken during the year is shown in the tables. Although, as usual, the greater proportion consists of milk-samples, which are taken regularly, other samples of food and drink examined at the Dominion Laboratory and its branches included apricots, bacon, baking-powder, beer, blanc-mange powder, bread, bread-improvers, cake, cheese, chocolate, coconut, corned meat, coffee, coffee and chicory essence, cream, cream of tartar substitutes, ice-cream, icing sugar, iodized salt, olive-oil, split peas, pepper, potatoes, rennet, teas, tinned fish, tripe, and vinegar. The drugs examined included extract of cascara, talcum powders, camphorated oil, ointments, tinctures, oil of turpentine, aspirin tablets, castor-oil, fruit saline, lime-water, liquid paraffin, lysol, olive-oil, corn cure, and dextrose. They were found, with few exceptions, to be of satisfactory quality.

It is hoped during the forthcoming year to revise and consolidate the regulations, as it is now twelve years since this was done in a comprehensive way, and a number of question require attention.

The value of a fairly complete set of statutory standards for foodstuffs, such as we have, is frequently apparent, and is a point on which certain overseas countries, including Great Britain, suffer by comparison. Medical Officers of Health in England from time to time write of this lack, particularly in the direction of controlling misleading labelling, and also what has been termed "collateral advertisement," which may be in the form of a newspaper advertisement, a handbill, an advertisement on the label of another product of the same manufacturer, or a radio broadcast. The advertisement question was taken up in an amendment of the Sale of Food and Drugs Act, 1924, and a useful provision enacted, but the advent of radio broadcast advertising was not foreseen, and some wider powers to regulate this may be found necessary.

The standards which are followed for drugs are, with few exceptions, as laid down in the British Pharmacopœia and the British Pharmaceutical Codex. Generally speaking, it can be said that there is a very satisfactory observance of these standards by chemists and other traders. Many everyday substances such as camphorated oil, paraffin oil, boracic powder, aspirin, Friar's balsam, iodine, cascara, Epsom salts, cod-liver oil, and the like, are included in the British Pharmacopœia or the British Pharmaceutical Codex. These are what may be termed common property, as are most of the ingredients included in a medical prescription, and accordingly there is a standard as to strength and purity laid down for each. However, it is obviously not practicable to lay down standards for proprietary medicines and secret remedies. Where the medicine is intended for internal use by human beings, and contains a poison, the name and proportion of the poison must be stated on the label, but otherwise a proprietary medicine must be taken on trust, as is the case with the advertising concerning it. There is a Quackery Prevention Act in force, designed to deal with this aspect, but its provisions are inadequate and in any case do not include radio broadcast advertising.

Poisons.

The Poisons Act, 1934, was enacted to regulate the sale, custody, importation, and carriage of poisons. Appropriate regulations to give effect to the licensing provisions of the Act are in force and are working satisfactorily. Draft proposals for general regulations will shortly be submitted, having now been cast in final form after much inquiry and discussion with all interests concerned.

The primary object is to see that poisons and poisonous substances are classified as to potency, and that they are then packed and labelled in such a way that the purchaser will have adequate warning as to their nature.

However, much of this precautionary work can be nullified if the purchaser does not take sufficient care to keep the label intact, and store the poison where no harm is likely to result. To obviate this, it is not practicable to institute a system of inspection which would ensure that the regulations are observed in people's private homes, but a knowledge of the regulations should give guidance to persons who handle poisons, and in cases of accident where investigations have to be made, should the fault be due to carelessness on the part of the owner of a poison, penalties may be enforced. There is no doubt that there is room for much improvement in the practices followed in workshops, factories, and farms, where poisons are taken from the bulk supply and mixed for use or partial use in the first container that comes to hand, such as a beer-bottle or some utensil ordinarily used for holding or preparing food.

The regulations, it is suggested, should apply to all transactions in poisons whether disposed of by sale, gift, loan, or otherwise, as unless this is done there is no subsequent check on responsibility after a poison has been acquired by the first owner obtaining it from a wholesaler or chemist.

The system of classification used follows, as closely as is permissable within the framework of the Act, the principles recently adopted in England; and the methods of labelling provided for will not conflict with the labelling which will be generally followed where poisonous mixtures are made up in England and imported into New Zealand.

TABLE A.—NOTIFIABLE DISEASES IN NEW ZEALAND FOR YEAR ENDED 31ST DECEMBER, 1936, SHOWING DISTRIBUTION BY MONTHS.

Month.	Scarlet Fever.	Diphtheria.	Enteric Fever.		Tuberculosis.	Cerebro-spinal Meningitis.	Poliomyelitis.	Influenza.	Erysipelas.	Puerperal Fever.		Eclampsia.	Tetanus.	Hydatids.	Trachoma.	Ophthalmia Neonatorum.	Lethargic Encephalitis.	Food Poisoning.	Dysentery.		Actinomycosis.	Undulant Fever.	Lead Poisoning.	Anthrax.	Leprosy.	Totals, 1936.	Totals, 1935.	Totals, 1934.
			Typhoid.	Paratyphoid.						Ordinary.	Following Abortion or Miscarriage.								Bacillary.	Amœbic.								
January	48	31	10	..	103	2	..	6	19	8	5	9	2	5	1	4	3	10	..	..	..	..	..	..	..	266	275	212
February	63	41	3	..	71	..	..	..	16	3	13	5	1	4	..	..	..	..	..	..	..	1	..	..	..	221	208	220
March	108	36	6	..	80	..	..	2	16	8	15	9	1	6	..	2	..	..	2	..	..	1	..	..	..	292	317	255
April	122	36	2	..	61	..	..	3	21	8	13	9	1	4	..	..	1	5	..	..	..	2	..	..	..	288	330	274
May	123	48	5	1	82	..	..	3	22	6	6	8	..	4	1	3	1	3	..	..	..	..	..	1	..	317	287	284
June	78	59	2	1	77	..	1	5	27	13	9	9	..	4	1	2	..	..	34	..	..	..	..	..	..	322	291	272
July	97	53	6	..	68	..	..	4	38	8	14	9	..	7	..	3	1	..	20	..	..	..	..	..	..	328	318	317
August	137	63	12	1	79	3	..	30	39	6	8	6	2	2	1	..	..	3	..	..	..	1	1	..	..	394	273	350
September	110	51	..	..	81	2	..	8	22	8	11	9	1	2	2	1	..	..	1	..	..	2	2	..	..	313	273	217
October	87	38	5	..	87	3	..	5	21	8	8	5	2	4	..	..	..	..	4	..	1	3	..	..	..	281	306	266
November	84	32	2	..	75	1	1	5	27	10	6	10	2	4	..	3	..	2	..	..	..	1	1	..	..	266	224	214
December	95	25	5	..	70	1	85	6	23	9	13	9	3	3	..	2	1	9	1	..	..	4	..	..	..	364	247	241
Totals, 1936 ..	1,152	513	58	3	934	12	87	77	291	95	121	97	15	49	6	20	7	32	62	..	1	15	4	1	..	3,652	..	..
Totals, 1935 ..	863	747	84	3	808	10	8	60	252	81	176	72	14	33	6	24	4	58	18	..	6	17	5	..	..	..	3,349	..
Totals, 1934 ..	762	436	51		824	19	14	71	239	128	171	81	21	35	3	18	14	77	20	..	2	34	1	1	..	..	..	3,022

Table B.—Notifications of Cases of Notifiable Diseases by Health Districts for Year ended 31st December, 1936.

Name of Disease.	North Auckland.	Central Auckland.	South Auckland.	Thames-Tauranga.	Taranaki.	East Cape.	Wanganui-Horowhenua.	Wairarapa-Hawke's Bay.	Central Wellington.	Nelson-Marlborough.	Canterbury.	West Coast.	Otago.	Southland.	Totals.
Scarlet fever	19	74	38	11	30	8	44	130	189	28	339	17	150	75	1,152
Diphtheria	27	154	60	20	54	14	80	12	48	12	30	1	1	..	513
Enteric fever—															
(*a*) Typhoid	1	20	12	4	2	4	1	9	..	..	1	..	4	..	58
(*b*) Paratyphoid	..	..	..	..	..	1	..	..	..	..	1	..	1	..	3
Tuberculosis	19	172	44	16	28	17	61	48	177	16	127	22	109	78	934
Cerebro-spinal meningitis	..	1	2	..	..	2	1	..	..	1	3	2	..	..	12
Poliomyelitis	..	..	1	..	..	..	..	..	1	1	3	..	78	3	87
Influenza	..	3	7	..	4	1	3	3	..	2	5	1	4	44	77
Erysipelas	3	84	22	4	12	6	11	30	43	4	45	5	15	7	291
Puerperal fever—															
(*a*) Following childbirth	4	11	11	2	10	2	8	6	6	4	10	4	6	11	95
(*b*) Following abortion or miscarriage	..	51	4	..	8	..	3	2	15	1	23	1	8	5	121
Eclampsia	10	12	8	..	5	..	13	6	10	3	14	3	7	6	97
Tetanus	..	2	..	..	2	2	1	3	1	1	3	..	..	..	15
Hydatids	..	2	3	1	4	3	2	5	2	..	24	..	2	1	49
Trachoma	2	1	1	..	..	..	..	..	2	..	..	..	..	..	6
Ophthalmia neonatorum	1	4	1	..	5	..	1	1	2	..	1	1	2	1	20
Lethargic encephalitis	1	..	..	..	1	..	1	2	..	2	..	..	..	..	7
Food poisoning	..	13	..	1	5	..	3	..	..	..	5	..	5	..	32
Bacillary dysentery	..	60	..	..	1	1	..	..	..	..	..	..	..	..	62
Amoebic dysentery	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Actinomycosis	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1
Undulant fever	..	3	1	..	..	2	3	2	..	..	4	..	..	..	15
Chronic lead poisoning	..	..	..	..	..	..	..	..	..	..	4	..	..	..	4
Anthrax	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1
Totals	87	667	215	60	171	63	236	260	496	75	642	57	399	231	3,652

TABLE C.—NOTIFIABLE DISEASES IN NEW ZEALAND FOR YEAR ENDED 31ST DECEMBER, 1936, SHOWING DISTRIBUTION BY AGE AND SEX.

Disease.	Under 1 Year.		1 to 5 Years.		5 to 10 Years.		10 to 15 Years.		15 to 20 Years.		20 to 25 Years.		25 to 30 Years.		30 to 35 Years.		35 to 40 Years.		40 to 45 Years.		45 to 50 Years.		50 to 55 Years.		55 to 60 Years.		60 to 65 Years.		65 to 70 Years.		70 to 75 Years.		75 to 80 Years.		80 Years and over.		Total Cases at all Ages.		Grand Total.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
Scarlet fever	3	5	93	114	240	278	72	141	15	50	9	37	6	30	5	11	7	11	1	7	2	3	1	3	2	3	..	1	1	1	..	..	..	..	..	..	457	695	1,152
Diphtheria	8	3	83	59	111	95	23	31	5	14	7	23	5	8	4	12	2	2	2	7	..	3	..	..	..	3	..	..	..	1	1	..	..	1	..	..	251	262	513
Enteric fever—																																							
(*a*) Typhoid	..	..	2	1	4	2	6	3	4	5	3	6	3	3	3	1	3	2	..	1	1	3	..	1	..	..	..	..	1	..	..	..	..	..	..	..	30	28	58
(*b*) Paratyphoid ..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	3
Tuberculosis	..	..	1	1	12	7	14	16	29	50	60	118	58	81	58	65	40	40	43	23	36	20	47	8	33	16	16	6	15	4	6	6	3	1	..	1	471	463	934
Cerebro-spinal meningitis	1	1	3	1	2	1	..	1	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	5	12
Poliomyelitis	3	1	7	10	20	18	9	8	2	6	..	..	1	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	43	44	87
Influenza	2	1	9	3	4	10	2	2	3	2	..	1	2	2	2	6	5	..	3	1	6	1	4	1	1	3	..	1	..	..	..	..	..	..	..	..	43	34	77
Erysipelas	7	2	2	10	7	6	4	2	5	5	3	6	5	8	4	10	8	13	11	20	11	19	15	18	10	17	6	11	7	9	7	8	3	5	5	2	120	171	291
Puerperal fever—																																							
(*a*) Ordinary	..	..	..	..	..	..	..	..	..	4	..	37	..	24	..	17	..	10	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	95	95
(*b*) Following abortion or miscarriage	..	..	..	..	..	..	..	..	..	4	..	27	..	41	..	35	..	10	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	121	121
Eclampsia	..	..	..	..	..	..	..	..	..	8	..	19	..	36	..	17	..	11	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	97	97
Tetanus	..	..	..	..	1	1	2	1	1	1	2	1	1	..	..	..	..	..	..	..	1	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	11	4	15
Hydatids	..	..	..	2	2	2	..	1	3	..	1	1	4	..	2	1	..	4	1	2	4	..	1	1	5	4	4	..	4	..	..	..	..	..	..	..	31	18	49
Trachoma	..	..	..	..	..	..	..	1	..	..	..	..	1	2	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	4	6
Ophthalmia neonatorum ..	10	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	10	20
Lethargic encephalitis ..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	1	1	1	1	1	..	..	..	..	..	..	..	..	..	4	3	7
Food poisoning	..	..	..	..	..	1	1	2	..	1	1	2	2	2	..	3	1	2	..	3	1	1	2	2	1	1	1	..	..	..	1	..	1	..	..	12	20	32
Dysentery—																																							
(*a*) Bacillary	..	..	..	..	1	1	..	1	..	2	2	6	1	8	2	4	..	4	1	6	..	5	1	4	1	4	1	3	1	..	1	1	1	..	..	..	13	49	62
(*b*) Amœbic	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Actinomycosis	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Undulant fever	..	..	..	..	..	1	..	..	1	..	1	1	1	..	2	1	..	..	1	..	..	..	3	..	1	1	1	..	..	..	..	..	..	..	..	..	11	4	15
Lead poisoning	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	4
Anthrax	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Totals	34	23	200	201	404	423	133	210	73	152	89	286	91	246	83	183	67	109	66	85	62	56	77	39	57	53	30	22	29	15	16	15	8	7	5	3	1,524	2,128	3,652

TABLE D.—MAORIS: NOTIFICATIONS OF CASES OF NOTIFIABLE DISEASES FOR YEAR ENDED 31ST DECEMBER, 1936.

Name of Disease.	North Auckland.	Central Auckland.	South Auckland.	Thames-Tauranga.	Taranaki.	East Cape.	Wanganui-Horowhenua.	Wairarapa-Hawke's Bay.	Central Wellington.	Nelson-Marlborough.	Canterbury.	West Coast.	Otago.	Southland.	Total.
Scarlet fever	..	..	..	..	..	4	..	..	..	..	..	..	..	..	4
Diphtheria	1	4	6	..	..	1	2	1	..	..	..	..	..	..	15
Enteric fever—															
(*a*) Typhoid	6	12	37	20	8	25	5	21	..	..	..	..	..	..	134
(*b*) Paratyphoid	..	..	..	..	..	1	..	1	..	..	..	..	..	..	2
Tuberculosis	35	21	35	8	12	17	34	39	4	1	4	..	1	3	214
Cerebro-spinal meningitis	1	..	2	..	..	..	1	..	..	..	..	..	..	..	4
Influenza	3	1	..	..	..	4	1	..	..	..	..	..	..	1	10
Erysipelas	1	..	2	..	..	1	1	..	..	..	..	..	..	..	5
Puerperal fever—															
(*a*) Following childbirth	..	1	3	..	4	..	2	1	..	..	1	..	..	..	12
(*b*) Following abortion or miscarriage	5	2	2	..	1	..	..	..	..	..	..	..	..	..	10
Eclampsia	..	..	..	1	..	1	..	..	..	..	..	..	..	..	2
Hydatids	..	..	..	..	..	4	2	2	..	..	..	..	..	..	8
Trachoma	..	1	6	..	..	..	..	1	..	..	..	..	..	..	8
Ophthalmia neonatorum	2	..	1	..	..	2	1	1	..	..	..	..	..	..	7
Lethargic encephalitis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bacillary dysentery	31	1	..	..	..	..	..	..	..	..	..	..	..	..	32
Undulant fever	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1
Total	85	43	94	29	25	60	49	68	4	1	5	..	1	4	468

TABLE E.—VENEREAL DISEASES CLINICS: CASES TREATED DURING THE YEAR ENDED 31ST DECEMBER, 1936.

—	Auckland.		Wellington.		Christchurch.		Dunedin.		Totals.	
Number of persons dealt with for first time and found to be suffering from—	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Syphilis	80	45	16	42	22	7	14	5	132	99
Soft sore	..	..	..	..	10	1	1	..	11	1
Gonorrhœa	541	178	355	113	370	92	119	90	1,385	473
No venereal disease	146	53	64	134	42	18	21	2	273	207
Total attendance of persons suffering from—										
Syphilis	2,169	2,202	1,869	1,720	481	571	509	544	5,028	5,037
Soft sore	..	..	..	..	84	6	1	..	85	6
Gonorrhœa	17,037	2,451	24,743	7,474	13,114	3,800	6,534	4,249	61,428	17,954
Number of persons suffering from—										
Syphilis	781	727	636	853	2,394	913	148	157	3,959	2,650
Gonorrhœa	1,469	800	1,572	796	539	211	827	743	4,387	2,550

SECTION 3.—PORT HEALTH INSPECTION.

TABLE I.—NUMBER OF VESSELS INSPECTED DURING THE YEAR ENDED 31ST DECEMBER, 1936.

Port.	Number of Vessels inspected.	Prohibited Immigrants.			
		Infectious-disease Cases.	V.D. Cases.	Infirm Cases.	Mental Cases.
North Auckland Health District—					
Opua	1	..	..	..	..
Combined Auckland Health District—					
Auckland	361	17	33	124	6
Taranaki Health District—					
New Plymouth	20	1	3	118	..
East Cape Health District—					
Gisborne	3	..	..	..	..
Combined Wellington Health District—					
Wanganui	1	..	..	..	..
Napier	5	..	..	..	..
Wellington	119	8	20	34	4
Nelson	1	..	..	..	..
Picton	4	..	..	..	..
Combined Canterbury Health District—					
Lyttelton	34	4	9	1	..
Timaru	..	..	..	..	..
Westport	3	..	..	..	..
Greymouth	2	..	..	..	..
Combined Otago Health District—					
Oamaru	3	..	..	..	..
Port Chalmers	27	..	..	..	..
Bluff	57	..	..	..	..
Totals	641	30	65	277	10

SECTION 4.—WORKING OF THE SALE OF FOOD AND DRUGS ACT.

TABLE 1.—SHOWING SAMPLES RESPECTIVELY OF MILK AND OTHER FOODSTUFFS TAKEN AND DEALT WITH DURING THE YEAR ENDED 31ST DECEMBER, 1936.

Health District.	Number of Samples taken.		Number of Vendors.		Samples not complying.					
					Number of Samples.		Number of Warnings issued.		Number of Prosecutions recommended.	
	Milk.	Other.	Milk.	Other.	Milk.	Other.	Milk	Other.	Milk.	Other.
North Auckland ..	91	12	86	7	5	..	4	..	1	..
Central Auckland ..	2,069	204	2,069	190	91	9	71	7	20	..
South Auckland ..	183	38	175	21	15	1	7	..	8	1
Thames-Tauranga ..	112	5	112	5	1	..	..	..	1	..
Taranaki	66	..	64	..	1	..	..	..	1	..
East Cape	205	118	205	58	1	1	1	1	..	..
Wanganui-Horowhenua	224	5	223	5	3	..	..	..	3	..
Wairarapa - Hawke's Bay	205	2	202	2	1	..	1	..	..	..
Central Wellington ..	1,560	26	1,560	25	18	4	8	2	10	2
Nelson-Marlborough ..	60	16	60	15	1	..	..	..	1	..
Canterbury	2,011	133	1,969	128	83	13	63	8	20	..
West Coast	283	15	261	15	10	1	8	1	2	..
Otago	753	264	583	30	35	1	20	1	12	..
Southland	104	49	85	18	17	3	6	1	7	..
Totals ..	7,926	887	7,654	519	282	33	189	21	86	3

TABLE 2.—SHOWING INSPECTION OF PREMISES ENGAGED IN SELLING OR MANUFACTURING FOODSTUFFS DURING THE YEAR ENDED 31ST DECEMBER, 1936.

Health District.	Inspections.		
	Number of Premises inspected engaged in Manufacturing Foodstuffs.	Number of such Premises where Defects occurred.	Number of Instances Goods were "seized" or "destroyed."
North Auckland	608	70	..
Central Auckland	1,158	146	54
South Auckland	2,006	192	1
Thames-Tauranga	318	37	2
Taranaki	238	42	4
East Cape	533	123	1
Wanganui-Horowhenua	190	13	9
Wairarapa - Hawke's Bay	197	13	3
Central Wellington	256	19	47
Nelson-Marlborough	153	7	2
Canterbury	967	21	8
West Coast	697	81	4
Otago	1,539	127	6
Southland	667	70	7
Totals	9,527	961	148

T. R. RITCHIE,
Director, Division of Public Hygiene.

PART III.—SCHOOL HYGIENE.

I have the honour to report on the work of the Division of School Hygiene for the year ended 31st March, 1937.

Staff.

During the year Drs. Bakewell and Abbott left New Zealand on extended leave of absence. The following new appointments were made to the staff:—

School Medical Officers.—Dr. M. H. Deem, Hamilton; Dr. A. H. Platts-Mills, Wellington; and Dr. S. Mulholland, Christchurch.

School Nurses.—Miss E. M. Armstrong, Auckland; Miss G. E. Barclay, Christchurch; Misses M. E. Browne and A. F. Smith, Wellington; and Miss E. MacGregor, Wanganui.

Figures relating to Work accomplished in 1936.

The following summary serves to indicate the extent of work accomplished during the school period, February to December, 1936:—

Schools inspected—		
Of roll under 100	748	
Of roll 100 to 500	330	
Of roll over 500	104	
	—	1,182
Children examined—		
Complete examinations	63,851	
Partial examinations	35,079	
	—	98,930
Number of notifications sent to parents		39,362
Number of addresses to school-children		482
Number of parents interviewed		14,512
Number of lectures or addresses to parents		27
The figures for the work of the school nurses are as follows:—		
Number of days assisted Medical Officer in schools		1,520
Number of children examined for medical schedule (H. Sch. 14)		94,187
Number of days engaged wholly in clerical work		836½
Number of children re-examined after Medical Officer's inspection		31,756
Number of children examined by special request		10,706
Number of visits to homes in—		
Large towns	6,290	
Small country towns	1,210	
Scattered districts	1,699	
	—	9,199
Number of children taken personally to hospital, &c.		276
Number of children taken personally to dental clinic		194
Number of health talks given		1,215

Summary of Complete Examinations.

	European.	Maori.
Number of children examined	63,435	4,896
Percentage found to have defects	68·84	76·34
Percentage with defects other than dental	51·23	58·82
Percentage of children showing evidence of—		
Subnormal nutrition	4·31	6·45
Pediculosis	0·68	9·27
Uncleanliness	1·08	3·37
Skin—		
Impetigo	1·18	5·53
Scabies	0·66	22·99
Ringworm	0·22	0·22
Other skin-diseases	1·52	2·45
Heart—		
Organic disease	0·62	0·36
Functional disturbance	1·08	1·47
Respiratory disease	1·32	1·47
Total physical deformities	12·13	15·80
Mouth—		
Deformities of jaw or palate, including irregularity	3·40	2·43
Dental caries	33·67	47·16
Extractions of permanent teeth	5·21	3·02
Fillings	52·37	12·78
Perfect sets of teeth	5·33	18·01

	European.	Maori.
Nose and throat—		
Nasal obstruction	4·47	1·63
Enlarged tonsils	17·74	12·62
Enlarged glands	9·28	6·35
Goitre—		
All degrees	14·85	3·82
Incipient	12·45	3·29
Small	2·10	0·43
Medium	0·27	0·08
Large	0·03	0·02
Eye—		
External eye-disease	1·38	1·67
Total defective vision	3·75	1·24
Corrected	2·08	0·06
Uncorrected	1·67	1·18
Ear—		
Otorrhœa	0·26	1·00
Defective hearing	0·36	0·34
Defective speech	0·61	0·06
Mental—		
Feeble-mindedness	0·31	0·16
Epilepsy	0·03	0·02
Other nervous defects	0·23	0·04
Tuberculosis—		
Total	0·04	0·66
Pulmonary	0·02	0·30
Other tissues	0·02	0·36

The amount of work carried out does not differ materially from that of recent years. The number of parents interviewed by School Medical Officers has increased, 14,512 being seen this year as against 11,121 in 1935; this is regarded as very satisfactory, as the co-operation of parents is welcomed by the School Medical Service. Dr. Moir remarks: "There is a steadily increasing attendance of parents at the school examinations, and evidence of considerable interest and a desire to take advantage of the advice offered."

The effect of the readmission of the five-year-olds in the schools is shown by the increased number of primer children examined, the number this year being 23,799, against 17,038 in 1935.

Co-operation with the Crippled Children's Society still continues in regard to arrangements made for the welfare of individual children.

Personal Hygiene.—School Medical Officers note an improvement in the clothing and cleanliness of the children. This is apparent in the crowded city schools as well as in the more remote areas.

Broadcasts.—During 1936 a series of radio talks on health were given in connection with the Educational Broadcast Sessions. It is considered that this method of disseminating health education should be extended.

Medical Examination of Teachers.

During the year 1,033 applicants for entrance into the teaching profession were examined by School Medical Officers, and the following summary giving details of the examination will be of interest. It is to be regretted that 115 applicants with dental caries presented themselves for examination, as it is considered that the necessity for treatment before examination should have been obvious to the students.

Summary of Examination of Entrants to Teaching Profession.

Number examined	1,033
Number with any defect of vision	182
Number wearing glasses	165
Number with defective hearing	10
Number with any past or present aural disease	8
Number with nose defect	12
Number with throat defects	61
Number with any enlarged thyroid	143
Teeth—	
Number with any caries when seen	115
Number with one artificial plate	88
Number with upper and lower plates	39
Number with malocclusion	4
Number with any heart or lung condition	21
Number deferred for immediate treatment	79
Number considered as excellent	212
Number considered as average	667
Number considered as fair	122
Number accepted	963
Number deferred for further examination	38
Number rejected	32

The examination of prospective applicants for entrance into the teaching profession during their last year of school life was again carried out.

Kindergartens and Pre-school Children.

The routine medical examination of kindergartens was carried out in Auckland, Wellington, Dunedin, and Hawke's Bay, the result of the examination of 470 kindergarten children being as follows:—

Number of children examined, 478. Percentage found to have defects, 80·54. Percentage with defects other than dental, 60·04. Percentage of children showing evidence of—Subnormal nutrition, 2·30; pediculosis, 1·25; uncleanliness, 0·42. Skin—Impetigo, 2·93: scabies, nil; ringworm, 0·42; other skin diseases, 3·55. Heart—Organic disease, nil; respiratory disease, 2·93. Total deformities of trunk and chest, 19·03. Mouth—Deformity of jaw or palate, including irregularity, 8·16; dental caries, 44·35; fillings, 7·95; perfect sets of teeth, 38·07. Nasal obstruction, 10·46. Enlarged tonsils, 24·47. Enlarged glands, 16·73. Goitre—All degrees, nil. Ear—Otorrhœa, 1·05. Defective speech, 0·84.

The co-operation of the parents and kindergarten teachers in this work is noted with appreciation.

Pre-school Children.—It has been recognized for some time that provision should be made for the periodical medical examination of pre-school children—that is, children between the ages of two and five years. The Plunket Society in New Zealand take over the supervision of infants from birth until two years of age, and it is the hiatus between this age and the admission of the child to school at five years which it is hoped to bridge by an extension of the School Medical Service.

The results of an advisory clinic conducted in the Wanganui district some years ago afforded striking evidence as to the necessity for regular medical supervision of this age-group. The response on the part of the parents was excellent, and advice on the many problems inseparable from young children was eagerly sought. The clinic became overcrowded, and unfortunately the facilities for examination and the staff available did not permit of its continuance or extension.

Physical Education.

The desirability of a properly co-ordinated scheme of physical education in New Zealand has received serious attention during recent years. All School Medical Officers report on the necessity for a more regular and definite scheme. For example:—

Dr. Dawson states: "There is room for improvement in physical training. One is impressed by the bad carriage of the head. Many of our otherwise splendid specimens of humanity are spoilt by this defect. It is usual when watching children marching to see them with their heads forward and watching the heels of the one in front. The erect carriage of the head expands the chest and strengthens the lumbar muscles. The man who carries his head erect and can look his fellow-man in the eyes has an immense psychological advantage."

Dr. Phillipps remarks: "It is absurd to suppose that one-quarter of an hour's drill, however excellent in type and however well carried out by the teachers, can in any way compensate for, in too many cases, $23\frac{3}{4}$ hours of unhealthy living."

Dr. Irwin reports: "It appears to me that there is too little stress laid on posture. Children are so frequently taken out to drill without any allusion made to posture."

Dr. Moir states: "The teachers with whom I have discussed the question of physical education are not satisfied with the present method. They feel that the system is not fully understood by the older teachers, and are of opinion that better results could be obtained if specialized instructors were available to visit the schools periodically and advise on or correct their efforts. Or, as is being tried in some places, one teacher might be specially trained in physical education with a view to undertaking this work in each school."

Dr. Anderson comments: "I do not see any improvement in the posture of the school-children as the years go by, and until some more definite system is evolved than the fifteen minutes taken at the mid-morning break, I cannot see that there is any hope for improvement."

Dr. McLaglan states: "The posture of our children and their slovenly springless walk can only be described as lamentable. The bad posture of our rising generation is due to something much more fundamental than the bad handling of the daily ten minutes' drill. Of course, better drill would help, but the underlying factors are more difficult and more elusive. I note that the Finnish physical culture experts are demanding fifteen minutes out of each one of the five school hours; this is much more rational, and accords more with the physical needs of the body."

Physical education is designed primarily to maintain healthy growth and vitality. It will be seen, however, that this can only be attained by the inauguration of a system based on sound scientific lines, with a proper evaluation of up-to-date physiology. This is confirmed by the annual report of the Chief Medical Officer of the Board of Education, England, which states: "There is an absence of contact between the scientist and the physical trainer, and hence a lack of modern scientific standards for testing systems of physical training. The consequence has been that methods or so-called systems of physical training have been put forward from time to time as an improvement on the Swedish system for universal application, and have gained a large measure of popularity, although they embody features that are at least of questionable value. It is true that there are many difficulties in the way of determining standards for physical training likely to meet with general scientific approval. If such standards, which were not on the one hand too rigid and on the other too elastic, could be framed by physiologists in collaboration with experts in physical training the advantages would be great."

In order to consider the problem of physical education in New Zealand schools and in the community generally, a conference is being called by the Minister of Education for April, 1937, and it is hoped that as an outcome of this conference a definite and appropriate system will be introduced.

Milk-in-Schools Scheme.

In 1936 the Government inaugurated the Milk-in-schools Scheme, the object of which is to make available to every child attending public and private primary schools and kindergartens, and, where desired, every child attending post-primary schools, a half-pint of milk each school-day, the milk to be supplied to each scholar at a regular hour each day.

The first distribution under this scheme took place at the beginning of the first term in 1937, when children in the four main centres were supplied with a half-pint bottle of milk, together with straws for drinking. At the end of March approximately 70,000 children in the Auckland, Wellington, Canterbury, and Otago metropolitan areas, including suburbs, were receiving free milk; in addition there were partial schemes operating in Southland, Waikato, Taranaki, Hawke's Bay, and South Canterbury, under which provision was made for approximately 23,000 children.

In the past many parochial schemes were in operation, and experience has shown that speedy improvement has followed the daily consumption of the milk ration, not only in cases of subnormal nutrition, but also in children considered to be in a normal condition of health. One headmaster in the Wanganui district stated that school attendance increased, the children did better work, and were not so weary at the end of the day; especially was this noticeable among girls from twelve to fourteen years of age, the majority of whom came from good homes, where the diet would have been considered adequate.

The success of the Government scheme is therefore undoubted, and its progress is giving much satisfaction to officers of this division. School Medical Officers have been asked to obtain data as to the physical measurements and general well-being of the children taking milk, and the position is being watched with great interest.

Nutrition.

The subject of nutrition has been reviewed many times during recent years. All School Medical Officers this year note an improvement in the standard of average nutrition, although attention is drawn to the fact that many children of share milkers appear tired and listless, and in the towns the late hours and other unsatisfactory home conditions still account for a percentage of children failing to attain a normal standard of health.

Diet and School Lunches.

An investigation into the diet of school-children was submitted by Dr. Stevenson, Dunedin. A tabulation was made of the items of 14,727 meals answered by school-children of the upper departments of the elementary schools in Dunedin City, from which it would appear that the diets were deficient in fish, cheese, fruit, eggs, and milk. Vegetables were not so infrequently used as anticipated. Tea was not so frequently used as anticipated. From a study of the individual diets, Dr. Stevenson states that there is a wide range in the discipline and intelligence used in the choice of food for the children.

Dr. Deem made an examination of the school lunches at every school inspected, and reports as follows: "Speaking generally, the lunches were poor. Many of the children have white-sugar or jam sandwiches, or white scones, and some bring nothing but biscuits and cakes. Others buy their lunches, consisting generally of hot pies and cakes from the nearest pastry-cook shop."

Opportunity is taken by School Medical Officers during visits to schools to examine lunches, and the general report is that these are not as satisfactory as they might be. They are uninteresting, too many jam sandwiches (which are easy to prepare) being used. Although the "School Lunch" pamphlets are available for all parents and school-teachers, it is obvious that the suggestions therein are not being used to the fullest extent.

Dr. Wilson, referring to the nutrition of children in the Auckland District, reports: "It appears to me that headmasters are taking an increasing interest in the health and diet of the children. I notice this by the questions asked by the various headmasters, and the interest taken in the addresses on health given to the children."

Health Camps.

A conference to establish a National Federation of Health Camps was held in Wellington on the 10th July, 1936, and was opened by the Hon. P. Fraser, Minister of Health. All existing health-camp organizations were invited to send delegates, and a fully representative meeting was held. Dr. Watt, Director-General of Health, presided, and Mr. Lambourne, Director of Education, was also present, together with a representative from the Post and Telegraph Department. It was explained that, in view of the rapid extension of the scheme and the widespread interest and generous assistance given by the general public, it was desirable that a Dominion organization be formed to ensure that available resources were utilized to the best advantage and some uniformity in policy established. It was evident that all present were anxious to co-operate in any measures that would result in a continuance of the voluntary status of the various associations conducting health camps, and which would promote the health and happiness of any children requiring health-camp treatment.

The following is a summary of the resolutions passed at the meeting:—

1. (*a*) That this conference approves the suggestion that a National Federation of Health Camps should be established throughout the Dominion.

(*b*) In the opinion of this conference the function of the State should be to co-operate by giving—

(i) The assistance of experts, when required by camp executives, in matters of organization, education, medical supervision, &c.

(ii) Use of public reserves and buildings available for camp purposes.

(iii) Any financial assistance by way of subsidy from the health stamps or other funds, as may be necessary, such funds to be credited only to those associations joining the national society.

(N.B.—It must be understood that funds raised solely by the activities of any individual organization belong to that association; funds raised by the sale of health stamps must be apportioned by the local Central Council.)

2. That it is necessary to distinguish between *permanent* health camps and *summer* health camps, as follows:—

(*a*) *Permanent health camps* shall be institutions which are kept open practically throughout the year, or for such period as the necessities of the district require, and in buildings set apart for this sole purpose.

(*b*) *Summer health camps* shall be available during the Christmas holidays, or at a convenient adjacent period, in such buildings as school premises or other premises as may be approved.

3. That children eligible for admission to permanent health camps shall, generally speaking, be those whose condition of health requires residence for an extended period (preferably not less than six weeks) under expert supervision (medical and nursing).

4. That children eligible for admission to summer health camps shall be those whose physical condition makes advisable change of air, together with simple routine inculcating the principles of healthy living. The period of stay will necessarily be determined by local conditions, but need not reach the six weeks suggested minimum period for permanent health camps.

5. That all arrangements relative to camp premises and methods shall be subject to approval of the Director-General of Health.

6. That before admission to a permanent health camp all children shall be medically examined, preferably by the local School Medical Officer, but where this is not practicable examination may be carried out by a private medical practitioner on behalf of the local health camp committee.

7. That children selected for admission to a summer health camp shall be nominated by head teachers and School Medical Officers and nurses and other responsible organizations, and admitted subject to recommendation.

8. That all children, whether selected for a permanent health camp or a summer health camp, shall be medically examined to ensure freedom from infectious disease, preferably within one week prior to admission.

9. That in order to prevent wastage there shall be a limit to the number of permanent health camps.

10. That the conference recommends the establishment of a National Council (called the Dominion Advisory Board) at Wellington, whose functions will be generally to supervise and to submit to the authorities the views of the Central Councils to be established at Auckland, Wellington, Christchurch, and Dunedin, and later elsewhere as the Board may deem necessary.

11. That the Dominion Advisory Board shall consist of the Director-General of Post and Telegraphs, Director of Education, Director-General of Health, and two delegates from each of the four (at present) Central Councils.

12. That the Central Councils shall be constituted as follows:—

(*a*) One representative from each of the executives of existing organizations included in the territory of the Central Council	6
(*b*) Post and Telegraph Department	1
(*c*) Education Board	1
(*d*) Health Department	1
(*e*) District Executive representatives not exceeding five	5

13. That the territory administered under each Central Council shall be defined on the basis of the four old military districts.

14. That the functions of the Central Councils shall be—

(1) To decide the number of District Executives.
(2) To use as far as possible existing camp facilities run on approved lines.
(3) To decide the location of any new permanent camp that may be deemed necessary.
(4) To decide from time to time the location of any summer camps.
(5) To delegate to existing camp executives the continuation of their work, and, subject to the direction of the Hon. the Minister of Health, to subsidize such work as may be decided.
(6) To promote the formation of any necessary new camp committees from contiguous district executives, if existing facilities are inadequate.
(7) To decide generally the division of the total funds derived in future in the provincial area from the sale of health stamps and from other sources not definitely designated for a particular purpose, or as specifically directed by the Minister of Health.
(8) To each appoint two delegates to the Dominion Advisory Board.

15. That the rights and duties of District Executives shall be as follows:—

(1) To be represented on the Central Council.
(2) To be used in the formation of new camp executives.
(3) To promote the formation of local-area committees.
(4) To assemble all information as to needs and resources of the committees, and transmit the information to the Central Council.
(5) To promote publicity and other means of developing the interest of local-area committees.
(6) To arrange representation from the committees.

16. That the local-area committees shall—

(1) Be represented on the District Executive.
(2) Undertake the sale of health stamps and other means of raising funds.
(3) Lodge at the local post-office the funds raised, and transmit to the District Executive a statement of the amount, and state the requirements of the children in the area.

The machinery was thus set in motion for the formation of the National Federation of Health Camps. This marks an important era in the development of the movement in New Zealand, and it is felt that, with the establishment of the Central Councils, where members may exchange ideas of mutual assistance, fresh impetus is being given to the work.

The various associations are to be congratulated upon the outcome of the conference, the satisfactory conclusion of which was only possible by the efforts of all concerned.

Owing to the outbreak of poliomyelitis in Dunedin in December, it was reluctantly decided to cancel arrangements for the holding of health camps throughout the Dominion this summer. The Wellington Children's Health Camp Association, however, offered the facilities at the Otaki Health Camp to the authorities of orphanages in Wellington, and several groups of children from these Homes were given the chance of a holiday at the seaside. When the restrictions were lifted, the Community Sunshine Association opened their camp at Motuihi; also the Dunedin Health Camp Association ran a short camp of four weeks at Waikouaiti; and twenty children from Gisborne and the coast went into residence at Gisborne under the auspices of the Gisborne Health Camp Committee.

Tuberculosis Contacts.

The supervision of tuberculosis contacts has been done wherever possible, and the following reports are of interest as evidence of the work done in some of the centres:—

Summary of Tuberculosis Contacts in the Wellington District for Year ending December, 1936.

Total number of children on list (seen at least annually)	533
Children—	
Reporting—	
Six-monthly	15
Three-monthly	5
One-monthly	2
Referred to—	
Nose and Throat Department	35
X-ray	46
Orthopædic specialist	5
Ultra violet therapy	3
Out-patient, for observation	1
Out-patient, eye specialist	1
Out-patient, diet; remedial exercises	2
Dental Department	9
Hospital for observation	5
Admitted to—	
Otaki	1
Pukeora	1
Recommended for health camp	15
Tubercule inunction	4

In addition, 52 children are under observation by a specialist at Lower Hutt.

The position in Christchurch appears to be adequately met by the clinic attached to the Christchurch Hospital, of which Dr. McLaglan reports as follows: "The tuberculosis clinic in Christchurch is extremely efficient. Dr. Macintyre is most interested and most approachable. It is his practice to keep in touch with the children of all his patients at present in the sanatorium, and of those parents who have been discharged or who are attending the dispensary. These children visit him periodically for examination. The T.B. Dispensary sends in long lists every year of children it recommends for admission to health camps, and there is also the 'Preventorium' or Fresh Air Home attached to the Cashmere Sanatorium, where Dr. Macintyre takes children of T.B. parents and gives them preventive treatment for a year or more. As far as I know, this is the only such preventorium in Australasia."

In Southland, Dr. Irwin reports that there are 485 contacts kept under review.

In Otago, Dr. Stevenson states that 334 tuberculosis contacts were kept under observation, 130 of whom resided in the Dunedin City area, and 204 in other Otago districts.

Dr. Heycock reports the establishment of a tuberculosis clinic at the Cook, Wairoa, Opotiki, and Whakatane Hospitals, together with the three-monthly visits of Dr. Hugh Short. In Gisborne there is close co-operation between officers of the Health Department and the Cook Hospital regarding these cases. The same remarks apply to the west coast of the North Island, where Dr. R. S. Francis, of the Otaki Sanatorium, has clinics in Palmerston North, Wanganui, Hawera, and New Plymouth.

Open-air Schools.

The open-air day school for delicate and undernourished children controlled by the Community Sunshine Association in Auckland still continues to do good work, and Dr. Stevenson reports that at the Dunedin Open-air School at Kew there is general improvement in the nutrition and well-being of the children attending.

Mentally Backward Children.

School Medical Officers continue to work in co-operation with officers of the Mental Hospitals and Education Departments in the examination of various groups of backward children. One or two School Medical Officers, however, mentioned the problem of the mentally backward child, especially in the out-of-way areas. It is felt that while the special class in the cities to some extent meet the case of the high-grade feeble-minded child, the question as to the best method of assisting the backward child in the country district and the child with low-intelligence quotient which will not

permit of his admission to a special class calls for further consideration. In respect of this latter aspect, Dr. Anderson states: "The question of education and training especially adapted to the needs of the mentally backward has been causing us some anxiety in our district throughout the year. At the present time in my area there are two special classes to serve our needs, one at Napier and one at Masterton. All the children in the area between these two spots needing special tuition drag along yearly in the schools, and finally leave with no definite purpose in life, to alternate odd jobs with walking the street, hence their capacity for conduct disorders." Dr. Stevenson makes the following comment: "There is need for an occupational centre in this city for children unsuitable to attend the special classes: these children form an ever-growing class."

There are, of course, special schools at Otekaike for boys and at Richmond for girls under the Education Department, and a farm at Templeton conducted by the Mental Hospitals Department for the mentally backward, but the question of uneducable children living in their own homes is always a problem. While they are young the parents are reluctant to part with them, and as the special schools are all in the South Island many parents keep these children much longer in their own homes, giving up their lives to their care, because they feel they cannot let them go so far away. A class for uneducable children held in the larger centres attached to a hospital or even attached to a school would certainly give the mothers a few hours rest each school-day from the unremitting care which these children require.

Native Schools.

The medical supervision and examination of Native schools continues, the work of the District Nurses being of great value. The following extracts from the reports of School Medical Officers are of interest:—

Dr. Cook states: "The most important advance for the year was the recognition of the principle that in certain Native schools a hot midday meal is necessary. In Te Hapua School a meal of this nature is now being prepared, with excellent results. The nutrition of Native children has on the whole improved, but there are still far too many inadequately clothed and fed despite a sufficiency of money in the home."

Dr. Heycock, who was appointed to the East Cape district in April, 1936, remarks: "The work among the Maori population was an entirely new experience. The medical examination of the Maori school-children and the visits to their homes and pas has been very interesting and instructive. Of inestimable value is the presence of the District Nurse at the school inspection and when visiting the homes."

Dental Caries.

The Division of Dental Hygiene is dealing with this problem in children up to the age of twelve years, but the question regarding treatment for older children is still causing concern. It is disappointing to find from the School Medical Officers' reports that there are so many children in New Zealand with dental caries; the majority of these can be taken to be second teeth, as dental caries of first teeth are not reported upon by several of the officers.

Dr. McLaglan remarks: "It is very satisfactory that the work of the Dental Division is extending, especially in the number of country schools it is bringing under its care. I have again to stress the necessity for providing facilities for dental treatment in older children. It is sad to see children whose molars are dentally sound, but whose incisors are decaying. Every hospital of any size should have a dental out-patients' department where incisors and the teeth of older children could be treated.

Dr. Dawson states: "Difficulty exists in obtaining treatment for the senior children. Extractions are done at New Plymouth Hospital. No conservative work is done. Other districts are not provided for in this respect. It would be a benefit to the people of New Zealand if the Dental Service could be extended to all pupils attending primary school."

Dr. Cook reports: "There is no change in this condition, the elimination of which is as urgent as ever."

Infectious Diseases.

Mild epidemics of the following non-notifiable diseases have occurred during the year: Whooping-cough, chicken-pox, and mumps.

Dr. Wilson, in the Auckland District, carried out the immunization of certain children against diphtheria. In the East Cape district Dr. Heycock immunized 537 children, and in Hamilton Dr. Deem immunized 194 children against this disease.

Schools and School Buildings.

All School Medical Officers report on school buildings, environment, and furniture; many of them draw attention to defects requiring remedy. Improvements are being made each year by the Education Department, and the country and town schools now being built are designed on the latest and most up-to-date lines. The environment of schools is receiving much more attention, and school gardens are now considered a necessity.

The Division of School Hygiene wishes to express appreciation to the Education Department, Mental Hospitals Department, various Education Boards, School Committees, and teachers for valuable co-operation.

Elizabeth Gunn,
Acting-Director, Division of School Hygiene.

PART IV.—HOSPITALS.

In presenting my annual report for the year ending 31st March, 1937, I wish to draw attention to the increasing difficulties which have been met with owing to the much greater activity of Hospital Boards as regards new buildings and extension to existing hospitals. A large amount of the time, both of the Technical Inspectors and myself, has been taken up in discussing and reviewing plans prepared by the Board's architects. As a result the work of inspection of hospitals is much behind, and it has been found impossible to visit hospitals in any routine or with any degree of regularity.

Building Activities.

Following a period of almost complete inactivity, and with the increasing demands for more accommodation, all except a few of the Boards have building operations in hand or are preparing to start in the near future.

Following a request that every Board should prepare a five-year building programme, many of the Boards called upon us for suggestions and assistance. The following list sets out the more important items either under construction or under consideration.

Mangonui Hospital Board.—(1) New laundry and boiler-house to be erected during the current year.

(2) The Board requested assistance in planning for future extensions to their hospital, such plan to be so designed that the present hospital will ultimately be replaced. A scheme was provided.

Bay of Islands Hospital Board.—(1) A new ward and kitchen block has been erected and is now in occupation. This is the second ward designed on modern lines that has been completed in the Dominion.

(2) Further remodelling and extensions have been tentatively planned so as to ultimately provide a practically complete new hospital.

(3) Extensions to the Nurses' Home have been completed.

Whangarei Hospital Board.—Plans are being prepared for—

(1) A new ward block.
(2) Additions to the Nurses' Home.
(3) New boiler-house and laundry.
(4) Remodelling of and additions to the present laundry to provide office accommodation, residents' quarters, lecture-room, laboratory, and central store. This work will proceed during the current year.
(5) Two of the other wards are also to be extensively remodelled.
(6) The new ward block is also so designed and located that it will form part of a complete remodelled hospital.

Kaipara Hospital Board.—The present hospital at Te Kopuru is an old building, and owing to its location on the site does not readily lend itself to future extensions. At the same time the ward accommodation is almost continually severely taxed and gross overcrowding occurs. The Board therefore asked for a report on the future building programme. Two tentative schemes were submitted—

(1) To gradually build a new hospital on the present site.
(2) To erect a complete new hospital on another site in Dargaville.

A final decision as to where the new hospital will be located has not yet been reached, but in the meantime a new site has been purchased in the town of Dargaville, and this new site is ample in area and has many excellent features.

Extensions to the Nurses' Home are at present being constructed.

Whangaroa Hospital Board.—Plans and specifications for a five-bed maternity annexe have been completed, and tenders will shortly be called.

Auckland Hospital Board.—Over a period of some years the Auckland Hospital Board has been discussing various schemes for providing additional accommodation. In the earlier part of the year a firm of Australian architects was invited to report on the best method of providing additional beds at the Auckland Hospital. The report recommended an extensive demolition in order to provide a site for a large new block of buildings. It has, however, long been the opinion of departmental officers that the same object could be achieved by a more conservative process. There seems little reason in the meantime to consider demolishing a well-constructed building, accommodating two hundred beds, when a considerable addition as part of a completed scheme can be made by replacing other buildings not so well constructed. This latter method of approach is now under consideration by the Board.

Auckland Hospital District is by far the largest in the Dominion, and it is essential in any building scheme to ensure that the vital question of administration is considered, and every effort made to remove existing difficulties. Each addition to this hospital in the past has apparently been considered merely as a separate entity, with the result that the difficulties of administration and control have been accentuated. The proposals now under consideration are—

(1) Extensions to the Nurses' Home. Plans for this are at present being prepared and the new block should be one of the most modern in the Dominion.
(2) Erection of a new multi-story ward block on modern lines, and, later on, in conjunction with this new block,
(3) A new administration building. In this block closely related services can be conveniently located and centralized.

Following the erection of these two new blocks, it will be possible to proceed with future extensions as required, properly located in respect to the administration block.

During the last two years the Auckland Hospital Board has also given considerable attention to the question of providing better and more accommodation for tuberculosis cases. The main activity has been directed to selecting a site, and the latest information is that finality is being reached.

Waikato Hospital Board.—The chief building proposals for this Board are—

(1) During the year extensions to the Nurses' Home have been made.
(2) Plans and specifications were completed and tenders called for a new administration block.
(3) Tenders have also been called for a new office building.
(4) During the year the two-story ward block showed serious building defects, and urgent repairs had to be undertaken. These are now complete.
(5) A new Nurses' Home was built at the Matamata Hospital.

Coromandel Hospital Board.—During the year the Board discussed the possibilities of adding a maternity annexe to the existing hospital. The plan submitted was not accepted by the Board, who, so far, have not put forward any alternative scheme.

Tauranga Hospital Board.—During the year plans and specifications were prepared and tenders accepted for—

(1) A large addition to the Nurses' Home.
(2) Extensions to one of the wards.
(3) Extensions and additions to the Te Puke Maternity Hospital.

Bay of Plenty Hospital Board.—(1) Extensions to the Nurses' Home were completed during the year.

(2) Tenders were accepted for the erection of a new laundry and boiler-house.

(3) It is proposed in the near future to provide more bed accommodation by extending the male ward. If it were not for the fact that the average days' stay of patients is extraordinarily low, this hospital could not cope with the admissions.

Cook Hospital Board.—During the last year several discussions and conferences were held with the Board and its officers regarding schemes of future development, and it was finally decided that the following works be proceeded with :—

Hospital : (1) Extensions to the Nurses' Home. Plans and specifications are now complete.

(2) New laundry and boiler-house. Plans and specifications are now nearing completion. When this building is completed the present laundry will be used as a central store.

(3) New accommodation for tuberculosis patients.

(4) New administration block. The completion of this last will allow alterations to be made in the main hospital, and enable much-needed single-ward accommodation to be provuded.

Memorial Home : Plans and specifications are being prepared to increase the accommodation for women patients and the domestic staff.

Waiapu Hospital Board.—During the year the Board engaged an expert to advise on the best method of conserving the natural gas supply. As a result of the recommendations made, it is anticipated that the supply will be sufficient to meet all normal requirements. The additions and alterations to the hospital were completed.

Wairoa Hospital Board.—During the year the extensions to the men's ward were completed, and the Board has now completed plans and specifications for additions to the Nurses' Home, and a new cottage for domestics.

Hawke's Bay Hospital Board.—Further building operations during the year were—

Napier Hospital : (1) Extensions to the Nurses' Home. This constitutes the final possible additions to the present building, and any future accommodation for nurses must be provided in a separate building.

(2) New office and administration block was completed.

(3) The erection of a new two-story isolation block has been commenced, and when completed this will be the first isolation block in New Zealand built on modern principles.

(4) More convenient and more suitable accommodation for X-ray department is at present under discussion.

Hastings Hospital : A new theatre block and a new out-patient department are in course of construction at the hospital, and should be completed in the near future.

Waipawa Hospital Board.—This hospital has been extensively altered and remodelled. A new theatre, massage, and X-ray block has been built, medical-administration quarters have been provided, and the office space extended. The general hospital has also been remodelled to provide more staff rooms, and to more easily allow of any future extensions.

Dannevirke Hospital Board.—The best ways and means of providing additions to this hospital, and also at the same time allow for future development, were carefully investigated, and following a report submitted to the Board it was decided to proceed immediately with—

(1) Removal of the present building containing the Matron's quarters and erection on the same site of a two-story administration block to provide accommodation for the Matron and Sisters, a Board room, an X-ray room, and office and out-patient departments.
(2) Erection of a two-story ward block, the ground floor to be used as a maternity ward and the upper floor as a women's ward.

The plans and specifications for this work have now been completed, and the women's ward follows the modern principle of arranging the patients in small groups.

Wairarapa Hospital Board.—Numerous discussions were held before a suitable plan for extensions and additions to this hospital was decided upon. The building programme is extensive, as accommodation was short in practically every department. The building programme is as follows:—

Masterton Hospital: (1) New Nurses' Home at present under construction.
(2) New theatre block at present under construction.
(3) Remodelled and extended office block to be proceeded with.
(4) Extensions to tuberculosis annexe to proceed almost immediately.
(5) New three-story ward block, for which preliminary plans are at present being considered.
(6) New ante-natal clinic—work to proceed in the near future.

Greytown Hospital: Extensive additions to the accommodation provided for old people are at present under way.

Pahiatua Hospital: Plans and specifications for the installation of a central-heating system have been completed.

Taumarunui Hospital Board.—Owing to shortage of accommodation for the nurses, it has become necessary to provide extensions to the Nurses' Home. Plans and specifications for this are at present being prepared.

Taranaki Hospital Board.—During the year a large addition to the Nurses' Home was completed, and even now no more than barely sufficient accommodation for the nurses is provided. Plans and specifications for a new two-story tuberculosis annexe were prepared and a tender accepted. This building should proceed in the very near future. Future building operations for this Board include a complete new administration block.

Stratford Hospital Board.—The additions to the main hospital to provide out-patient and administration accommodation have been completed, and the Board has at present under consideration a scheme for the complete reorganization of the steam and heating services of the hospital.

Wanganui Hospital Board.—After numerous discussions it was decided that the most essential need at this hospital was modern provision for isolation cases. Plans and specifications have therefore been prepared for a complete new block designed on modern principles, and tenders should soon be called. Additions to the Nurses' Home were also completed during the year.

Palmerston North Hospital Board.—During the year the new two-story administration block was completed, and the Board is at present considering the following:—

(1) Additions to the laundry, for which plans and specifications are now completed.
(2) Large additions to the Nurses' Home, the preliminary plans of which are at present under discussion.
(3) Remodelling and extension of the two-story ward block, to convert it into a modern children's ward.

Wellington Hospital Board.—After careful investigation the Wellington Board have decided to proceed with large additions to the present main hospital. They are fortunate in that the position of existing buildings will allow a complete new block to house about 350 patients being erected without in any way interfering with or demolishing any of the existing buildings. Plans of this block are at present under discussion, and the work should commence during the present year. Plans and specifications for a large addition to the Nurses' Home of about 130 rooms are at present being prepared. Authority has also been granted to the Board to acquire a site for a future hospital in Lower Hutt. The Wellington Hospital during the last two years has been very much overcrowded, the main block having on many occasions at least two hundred extra beds therein. The accommodation for nurses has also been seriously overtaxed, and has been the subject of a report by departmental officers to the Board. The present proposals should, however, overcome their difficulties.

Nelson Hospital Board.—The accommodation at Nelson Hospital is also proving insufficient, and the Board is at present considering the erection of extensive additions to the existing hospital. This will include a two-story ward block for medical patients, new accommodation for isolation cases, and new accommodation for tuberculosis patients.

Inangahua Hospital Board.—During the year plans and specifications were prepared for an addition to the maternity annexe. A preliminary discussion was also held with the Board to consider future extensions to the existing hospital. Owing, however, to the numerous additions that have been made to this hospital in the past, the only way out of their present difficulties will be to erect a complete new institution.

Buller Hospital Board.—During the year new steam and hot-water services were completed, and an additional new boiler added. At present there are under discussion additions to the Nurses' Home and new theatre and out-patient block. A report was also furnished of future extensions to the Kawatiri Maternity Home, but the condition of this building is such that it will probably have to be replaced entirely.

Grey Hospital Board.—The plans and specifications for the proposed new two-story ward block and additions to the Nurses' Home were completed and a tender accepted. This work should proceed in the very near future.

Westland Hospital Board.—A new Nurses' Home was erected, and is now in occupation. Plans and specifications for a new theatre block and a new children's ward have been completed. Tenders have been called, and the work should commence very shortly. Owing to the incresaed activity of the Public Works Department in South Westland, considerable discussion has taken place on the question of providing some hospital accommodation in that area.

North Canterbury Hospital Board.—It is understood that this Board has discussed during the year the question of providing additional hospital accommodation in the Christchurch area. The decisions of the Board have, however, not yet been communicated to the Department, so that no comment can be made thereon.

South Canterbury Hospital Board.—During the year a start was made with the erection of the three-story ward block including new X-ray and operating-theatre accommodation at Timaru Hospital. Following the completion of this, it is proposed to erect a new kitchen block, and to remodel and extend the existing laundry and boiler-house. Plans and specifications for a new theatre block at Waimate Hospital have been completed and this work should proceed in the near future.

Waitaki Hospital Board.—A new children's ward has been erected, a large amount of finance for this being provided by Mr. Saltzman, of Dunedin. At present the Board is considering some remodelling of the old part of the hospital, and considerable extension to the Nurses' Home.

Otago Hospital Board.—Following completion of the new administration block a new lecture-theatre has been erected, and a second one is now in course of construction. The new Queen Mary Obstetric Hospital is being built, and should be finished in the very near future. The Board also received authority to purchase additional land adjacent to the existing Nurses' Home for future hospital extension. It is understood also that the Board has had under discussion suggestions for additions to the main hospital. Plans and specifications for additions to the Nurses' Home at Wakari have been completed and a tender accepted.

Southland Hospital Board.—During the year the new hospital at Kew was completed and occupied. It, however, proved not to have sufficient accommodation, so that it has been necessary to keep the old hospital in use. The Lorne Farm Infirmary, has, however, been closed, and the patients therein have been transferred to the old hospital at Invercargill. It is probable that this old hospital will have to remain in use for a period of years, until the necessary additions to the new hospital have been decided upon.

Wallace and Fiord Hospital Board.—A new steam and heating service has been provided at this hospital, but since the 31st March a fire unfortunately occurred, and the engine-room and boiler-house were completely destroyed.

Vincent Hospital Board.—During the year this Board asked us to advise them on the future development of the hospitals in their area. After an inspection the Board was recommended as follows:—

(1) To build a new Nurses' Home at Clyde Hospital.
(2) To make certain necessary extensions and alterations to the hospital buildings at Clyde.
(3) To erect a complete new hospital at Cromwell.
(4) To remodel the existing hospital and convert it into a Nurses' Home.

The Board adopted these suggestions and plans are at present being prepared.

Maniototo Hospital Board.—It has been decided to proceed with extensions to the laundry and drying-room, and to put a sun-room at the end of the maternity ward.

It will thus be seen that nearly all the Hospital Boards in New Zealand have more or less extensive building proposals in hand or proposed.

Amalgamation of Hospitals.

During the year two Commissions were set up to consider amalgamation of adjacent Boards:—

(1) A Commission has recommended that the Southland Hospital Board and the Wallace and Fiord Hospital Board should be amalgamated; and
(2) It has also been decided by Commission that the Waihi Hospital Board, the Thames Hospital Board, and the Coromandel Hospital Board should amalgamate.

Queen Mary Hospital, Hanmer.

The following are extracts from the annual report of the Medical Superintendent, Dr. Chisholm:—

"I beg to present to you the annual report of the Queen Mary Hospital, and a report on the other activities of the Department of Health in Hanmer Springs.

"The medical work with the patients has proceeded on the usual lines. The number of patients presenting for admission have increased, both on the male side and female side. The female division of the hospital has been overcrowded, and there has been some difficulty in accommodating the number of patients presenting for admission.

"The type of patient admitted has varied a little in that there has been a greater number of organic cases admitted than in the past.

"*Red Cross.*—This society has now ceased to function at the hospital. During the past twenty years the Red Cross and the Y.M.C.A. have been engaged in recreational activities for the patients, and their work has been invaluable, and there is no doubt that the institution has greatly benefited from their work, and we have been much indebted to the Red Cross Society for all they have done during these past years.

"*Medical Staff.*—During the year, Dr. Tovey, who has been on the staff for some seven years, had to resign on the grounds of ill health. This was very much regretted, as Dr. Tovey's services to the institution have been very great, and he had carried on the work during the years of the depression, when the medical staff was short, and he undertook a great deal of work very willingly. He served the hospital most loyally and conscientiously, and it was with the very greatest regret that his

services had to terminate. Dr. Parker was appointed as Third Medical Officer, and arrived just at the time of Dr. Tovey's ill health and has been on the staff some four months. We have had, in view of Dr. Tovey's ill health, a succession of *locum tenens*, and although we have had very valuable help a *locum tenens* is not likely to prove as helpful as a permanent medical officer owing to the fact that his period of service is usually very short.

"*Nursing Staff.*—The housing-conditions of the nursing staff are satisfactory, but with the increased number of nurses now required to deal with the shortened hours the home tends to become crowded and should the institution develop much further it would be necessary to give consideration for increased accommodation for the nursing staff. There has been a number of changes in the nursing staff during the year, and lately some little difficulty has been experienced in obtaining the services of trained staff, but with the increased salaries this difficulty should now be overcome.

"*Male Staff.*—There have been few changes except one very important one in the transfer of Mr. Chappell, House Manager, to Head Office. Mr. Chappell served the hospital for some twenty years, and his work had been very valuable, and as his knowledge of the requirements of the institution was great it was inevitable that on his transfer his services would be missed. Mr. Richards has been appointed from the Dunedin Hospital in Mr. Chappell's place.

"*Dental Service.*—The dental work at the hospital has been carried on by the dental surgeon, Mr. Arthur Suckling, who visits the hospital at intervals or on request, and his work and assistance continue to be very much appreciated.

"*Massage Department.*—This section of the institution has been kept very busy, and the number of out-patients seeking treatment continue to increase. The work of the staff is satisfactory, and the equipment is in good order.

"*Electric-light Supply.*—There has been continued further demand for electric energy, but the plant is now fully loaded, if not somewhat overloaded, and any further extension of power to the village has had to be refused. The production of electrical energy has become a very serious problem, and it will have to be faced definitely by the Department in the very near future. There has been some tentative discussion in respect of bringing the Lake Coleridge supply to Hanmer Springs. This is a problem which will become acute with the building of the new hospital.

"*Water Service.*—This has given a great deal of trouble and has been a continual source of anxiety. Considerable investigations were carried out during the year, and various schemes for improvement were experimented with, and it has been decided to improve the intake of the present reservoir, and work on this has been commenced. This is likely to bring about a definite improvement in the supply and to do away with the difficulty of the reservoir being 'choked' with shingle.

"*Grounds in the Public Gardens.*—A satisfactory amount of care and attention to the public gardens and grounds has been carried out, and they continue to be a source of interest and pleasure, both to the patients and to the travelling public, and I am more than satisfied they are justified of the work and expense which is involved in them.

"*Farm.*—The farm work has been carried on satisfactorily, and it has been necessary, of course, to increase the staff of the farm in order to conform with the shortened hours, and this will eventually reflect on the price of the milk to the hospital. The farm still continues to supply very satisfactorily all milk and a certain number of vegetables and potatoes to the institution throughout the year. The farm buildings and fences are satisfactory, and stock is in good condition.

"*Bath-house and Swimming-pools.*—Investigations during the last year into the mineral-water supply for the bath-houses and swimming-pools continued to be carried out, and a new bore put down to some 250 ft., and one of the old bores was extended from 180 ft. to 250 ft. The result of this was a marked increase of water, which slackened off during the year, but still left a considerably augmented supply, and this supply has undoubtedly justified an increase in the swimming-pools. There is no doubt in my mind that improvements in the pools and bath accommodation will have to be considered in the very near future. The demand on the pools and bath facilities has increased with the increasing number of visitors to Hanmer, and there is also the dissatisfaction in the rather antiquated facilities which still exist.

"*Tea Kiosk.*—This continues to be of service to the public, and manages to maintain itself satisfactorily on its running-expenses.

"*Maintenance.*—General maintenance of the buildings has been carried out, but with the male hospital little has been done, in view of the fact that the new hospital is under consideration.

"I wish to take this opportunity of expressing my appreciation of the work done by and the support I have received from the senior members of the staff during the year, in which there have been many changes from the administrative point of view.

"I wish to take this opportunity of thanking you for your help and consideration, and for the assistance which I have received at all times from the officers of Head Office."

During the year Mr. Johnson, Technical Inspector, was granted holiday leave to proceed to England, and the information he collected during his visit is proving of immense value to the Department.

R. A. Shore,
Director, Division of Hospitals.

PART V.—DENTAL HYGIENE.

I have the honour to submit the following report on the work of the Dental Division for the year ending 31st March, 1937 :—

It is pleasing to be able to record a year of unusual activity and of marked progress in the development of the "five-year plan" for the completion of the School Dental Service. While as yet it is too early to see results in the form of new clinics established in fresh districts, nevertheless the carefully laid plans which were made more than twelve months ago are nearing fruition, and the year 1938 should see a number of new clinics established. From then onwards, those committees and other organizations who during the last few years have applied, in some cases again and again, to have clinics established in their districts are likely to receive the reward of their foresight and of their patience. If the plans made can be adhered to, there is every possibility that the Centennial year of New Zealand will see the School Dental Service, if not completed, at least nearing completion, as far as the primary schools of the Dominion are concerned.

The obstacle to the immediate expansion of the School Dental Service is lack of the necessary trained staff. Up to the present, therefore, the main effort has been directed to the training of additional dental nurses, and to the provision of adequate facilities for doing this to the best advantage. Plans for a modern dental clinic and training-school to be erected in Wellington are nearing completion, and it is confidently expected that this new institution will be in operation early in 1938. Meanwhile, the Training-school for Dental Nurses at Government Buildings, Wellington, has been enlarged, and the Ministerial residence in Tinakori Road is being converted for use as an annexe to the training-school. By these means, the number of dental nurses in training is being steadily increased, and in due course the result of this preparatory work will be apparent in the establishing of new school dental clinics, and the extension of dental treatment to children in districts not previously served.

As is shown in the statistical section of this report, the work of the service, despite adverse conditions, has been well maintained during the year. The number of children under regular treatment has increased by 5,065, making a total number of 89,803, and the number of schools under treatment (1,629) also shows a small increase over last year's number of 1,590. Rather more operations were performed this year than last (725,069 as against 674,374 last year), and the ratio of extractions to fillings shows a further gratifying reduction to 14·6 extractions per 100 fillings. The number of treatment centres is the same as last year—viz., 252—of which 144 are main-treatment centres, and 188 are sub-bases. As soon as more staff is available, it will be necessary to regroup some of the centres. In the circumstances, these figures indicate a satisfactory position, and they are evidence of a praiseworthy effort on the part of a depleted staff of dental nurses, a staff which, fortunately, it has been possible to reinforce by the temporary re-employment of a number of married ex-dental nurses. Two factors have combined to hamper the work of the service during the year: (*a*) Shortage of staff, due to the small numbers appointed for training during the years of financial stress, and (*b*) the epidemic of poliomyelitis which has passed over the Dominion, on account of which the reopening of the schools after the Christmas vacation was delayed, and the school dental clinics lost from six to ten weeks of operating-time. The latter caused considerable disorganization of the system of six-monthly treatment, more particularly as the service had not yet recovered from the influx of new entrants which followed the readmission of five-year-old children to the schools last year.

The situation has called for the closest vigilance and careful guidance on the part of District Dental Superintendents, for special industry and adaptability on the part of the staff in the field, and for the exercise of a considerable degree of patience on the part of dental-clinic committees and parents.

However, the situation is under control, and, as more trained staff becomes available, the work will gradually be restored to a normal basis.

Staff of Dental Division.

On the 31st March, 1937, the professional staff of the Division, disposed as under, numbered 17 dental officers, and 164 trained dental nurses. In addition, 79 student dental nurses were undergoing training, and steps were being taken to appoint a further 70 :—

	Dental Officers.	Trained Dental Nurses.	Student Dental Nurses.
Director	1	..	..
District staffs—			
District Dental Superintendents	4*	..	..
Staff of school dental clinics—			
Auckland District	2†	46	..
Wellington District	1	50	..
Canterbury District	2	39	..
Otago District	..	25	..
Wellington dental clinic and training-school for dental nurses	7	3	79‡
On extended leave	..	1	..
	17§	164§	79

* The Dental Superintendent of the Otago District is also in charge of the Central Clinic, Dunedin.

† Native Dental Officers working among Native schools in Bay of Plenty and East Coast districts.

‡ Of this number, twenty-nine will shortly complete their training and will be drafted for service in the field. The appointment of seventy additional student dental nurses has been authorized and is being proceeded with.

§ These numbers include three dental officers and thirteen dental nurses employed temporarily to augment the permanent staff. The latter are ex-dental nurses who have been re-engaged in a temporary capacity.

Statistics.

Operations performed in the field and in the training-school from 1st January to 31st December, 1936:—

Fillings—		
In permanent teeth	225,015	
In deciduous teeth	273,106	
		498,121
Extractions—		
Of permanent teeth	1,600	
Of deciduous teeth	70,488	
		72,088
Other operations		154,860
Total operations		725,069

The following figures illustrate the progress made during the last seven years:—

Year.	Number of Schools under Systematic Treatment.	Number of Children receiving Systematic Treatment.	Total Number of Operations.
1930	930	67,652	463,204
1931	1,118	68,995	562,759
1932	1,297	72,584	619,390
1933	1,430	78,391	623,625
1934	1,551	83,433	626,878
1935	1,590	84,738	674,374
1936	1,629	89,803	725,069

These figures include the years of acute financial stringency, during which the annual extension of the service to new districts became impossible. It is satisfactory to note that no ground has been lost, and that, on the contrary, the figures disclose a small but steady increase each year.

Total number of operations since the inception of the service, 5,964,348.

Ratio of Extractions to Fillings.

The number of teeth extracted as unsaveable as compared with the number of fillings performed shows a further gratifying decrease. The figure for the year under review is 14·6 extractions per 100 fillings. The steady decrease since the inception of the service is shown in the following table:—

	Fillings.	Extractions.	Ratio: Extractions per Hundred Fillings.
1921–22	13,047	14,939	114·5
1922–23	24,603	25,436	103·3
1923–24	47,610	37,978	79·7
1924–25	59,322	43,181	72·6
1925–26	61,506	41,339	67·2
1926–27	84,723	53,232	62·8
1927–28	116,916	66,523	56·8
1928–29	146,354	76,555	52·3
1929–30	190,934	71,128	37·2
1930–31	258,546	75,973	25·5
1931–32	334,827	80,389	24·0
1932–33	382,289	74,633	19·5
1933–34	397,437	69,208	17·4
1934–35	399,560	70,207	17·5
1935–36	450,727	72,782	16·1
1936–37	498,121	72,088	14·6

Training of Dental Nurses.

The following is an extract from the report of the Acting Superintendent of the Wellington Clinic and Training-school for Dental Nurses (Mr. A. D. Brice, B.D.S.):—

"The Superintendent, Dr. J. B. Bibby, returned from his extended tour abroad in December, 1936, since when he has been engaged on special duty, chiefly in connection with the development of the plans for the new building.

"The year under review has been a momentous one by virtue of the appointment of the largest number of student dental nurses in the history of the training-school. It has not been without its difficulties. This has been especially the case as regards accommodation. Various temporary measures and a series of changes were necessary in order to provide sufficient space in which to carry on the successive steps in the training course. Although the instructional staff was augmented, its task was unusually heavy on account of the problem presented by cramped accommodation, not to mention the preponderance of junior over senior students. There have been seventy-nine dental nurses, twenty-nine being in the second year, and fifty in their first year. The latter is the largest

number that has yet been enrolled in one year. In 1937, however, arrangements have been made for seventy to be entered for training. There has been no final examination during the period under review, because, owing to the delay in the appointment of the present senior division of student dental nurses, they will not have completed their training before August, 1937.

"I am pleased to be able to record the appointment of Mr. J. F. Fuller, B.D.S., and Miss F. M. Tattersfield, B.D.S., to the instructional staff, and of Miss C. Hooper, R.N., R.M., as Matron of the Wellington Clinic. Miss Tattersfield and Miss Hooper will take up duty shortly."

Wellington Dental Clinic.

Attendance and Operations.—Attendances recorded and operations performed at the Dental Clinic, Wellington, for the year ending 31st March, 1937, are shown below, the figures for 1935–36 being shown in parenthesis.

Attendances.	Fillings.	Extractions.	Other Operations.
23,588	15,748	1,444	17,569
(29,645)	(20,790)	(1,822)	(17,485)

The decrease in these figures is accounted for by the fact that the Wellington Clinic was closed to patients for practically three months on account of the epidemic of infantile paralysis.

Total attendances recorded and operations performed since the opening of the Wellington Clinic to 31st March, 1937, are—

Attendances.	Fillings.	Extractions.	Other Operations.
452,558	202,060	69,373	248,829

Annual Registration Fees.—Registrations of patients during the twelve months ended 31st March, 1937, totalled 2,060, compared with 2,633 for the previous year. Exemption from payment of the annual registration fee was granted in 297 cases.

Waiting List.—At the date of the last annual report the number of patients awaiting admission to the Wellington Dental Clinic was 3,526. Of this number, 779 have been called up for treatment during the year. On the other hand, 651 names have been added, making a total number of 3,398 awaiting treatment as at the 31st March, 1937. It is expected that this list will be reduced very considerably during the next twelve months.

Hostel for Student Dental Nurses.

Since the early years of the training-school, the Department has interested itself in the living-conditions of the student dental nurses in Wellington. For a number of years nurses were permitted to live only in lodgings that had been approved by the Department. These were inspected at intervals by departmental officers. While this was undoubtedly a move in the right direction, the system was not altogether satisfactory. Therefore, when in 1932 the Council of the Society of Friends offered to place their fine hostel in Kelburn at the disposal of the Department, the offer was willingly accepted. A satisfactory arrangement was arrived at, whereby the society continued to conduct the hostel as a private venture, and the Department undertook that a certain minimum number of dental nurses would be in residence each year. There is close and pleasant co-operation between the hostel authorities and the Department, and the arrangement, which took effect at the beginning of 1933, has proved very satisfactory. Approximately forty dental nurses live at this hostel.

Early in 1936 the appointment of an increased number of student dental nurses necessitated the finding of additional hostel accommodation. The Department was able to enter into an arrangement with Miss M. E. Gould similar to that made with the Society of Friends. Miss Gould opened a hostel at 42 Tinakori Road, and approximately thirty dental nurses have been accommodated there. Unfortunately this arrangement terminated at the end of the year under review. It therefore became necessary for the Department to make fresh arrangements for the accommodation of these nurses, and also to provide for a still further increase in the number of trainees. The Department then decided to conduct its own hostel, and to this end it acquired the lease of the Mansions Private Hotel, Ghuznee Street, Wellington, where fifty-six nurses will be accommodated under Miss E. Pengelly, R.R.C., as Matron. This arrangement takes effect as from the 1st April, 1937.

Dental Survey of Maori Children.

In May, 1936, the Director, accompanied by Dr. R. M. S. Taylor, of the instructional staff, visited Maungapohatu, in the Urewera country, and made a study of the dental condition of the Maoris there, in the hope that in this isolated mountain village a condition would be found that would approximate to that of the ancient Maori, who was renowned for the perfection of his teeth. While the results in this respect were disappointing, some interesting material was obtained. An account of the investigation is included as an appendix to this report.

Dental Health Education.

The importance of constant activity in connection with dental health education continues to be kept before the staff, and the results during the past year have been encouraging, in that the number of talks and addresses shows a still further increase to 986, as against 742 in the previous year, and 425 in the year before that. The figure 986 represents talks, addresses, competitions, and other activities over and above the routine chair-side talks and distribution of educational leaflets. To be fully effective, constant reiteration and continuous effort are necessary. Despite the handicap of shortage of staff and its attendant disabilities, it is obvious that many of the dental nurses have devoted much time and thought to this work.

During February, 1937, while the clinics were closed on account of the epidemic, all officers were required to undertake a series of studies and exercises in dental health education. Much of the work submitted showed not only originality, but also literary or artistic merit. Thus the time during which the clinics were closed was used to advantage.

More time is now being devoted to this important subject during training, and it is expected that the teaching that will be given by dental nurses in the future will be even more effectual in consequence.

Prevention of Dental Caries by Operative Treatment.

In the annual report of two years ago reference was made to the use of the "prophylactic filling" as a routine procedure in the School Dental Service. The practice that has been adopted is to apply prophylactic fillings in practically all permanent molars, before the appearance of caries. The technique used in the service is to open the fissures, usually for their entire length, with the smallest size of inverted cone bur, this size being used in order to limit the width of the "incisions"—it would be a misnomer to call them "cavities." Copper amalgam is worked into the incisions, condensed, and smoothed, and the surplus removed. The success of the operation lies chiefly in making the incisions as narrow as possible, and in securing clean sharp margins. The incisions should have a uniform width of less than 1 millimetre. The resulting filling is pleasing in appearance, and the experience in this service is that as a preventive measure it has proved successful beyond expectation. Since the introduction of this operation as a routine procedure several years ago, there has been a surprising reduction in the number of fillings required for the restoration of carious permanent molars.

The Contribution System.

After being in operation for six years, the system of financial contribution continues to operate, on the whole, satisfactorily. Dental-clinic committees are required to pay to the Department (in quarterly instalments) the sum of £30 per annum in respect to each dental officer or dental nurse operating full-time in their district, and, in addition, to find approximately an equal amount for certain local expenses. The committees in turn are authorized to charge an amount not exceeding 5s. per year for each child under treatment, but there is a provision that no child must be debarred from treatment on account of the genuine inability of its parents to meet the charge. The onus of remitting the charge rests with the local committees. These have no difficulty in dealing sympathetically with the cases of parents who frankly state their circumstances and ask for exemption. There is another type of parent, however, who is apt to cause difficulty in the local administration—namely, the parent who fails to respond to communications, who does not sign the "consent" form for treatment, and who ignores the requests of the committee for payment of the annual fee, until the time comes, as it inevitably does, when he realizes that treatment is not only necessary but urgent. He then becomes insistent that his child should have immediate treatment at the clinic. Committees generally take the view that in such cases, where parents have failed to avail themselves at the proper time of the facilities offered, they should make their own arrangements to obtain the services of a private practitioner. They realize that if such children are admitted to a clinic at a late stage, they can be treated only at the expense of the majority, who are under regular supervision and in receipt of periodical preventive treatment.

Generally speaking, however, the system operates smoothly. The parents understand the requirements, and co-operate with their committees accordingly. The assistance of Headmasters and teachers has been invaluable in bringing about this understanding, and in helping committees to collect their fees.

The amount paid to the Department by dental-clinic committees for the year ended 31st March, 1937, was £4,066, and allowing that committees disbursed a similar amount locally for the maintenance of their clinics, their total contribution for the year towards the cost of the School Dental Service was approximately £8,000.

General.

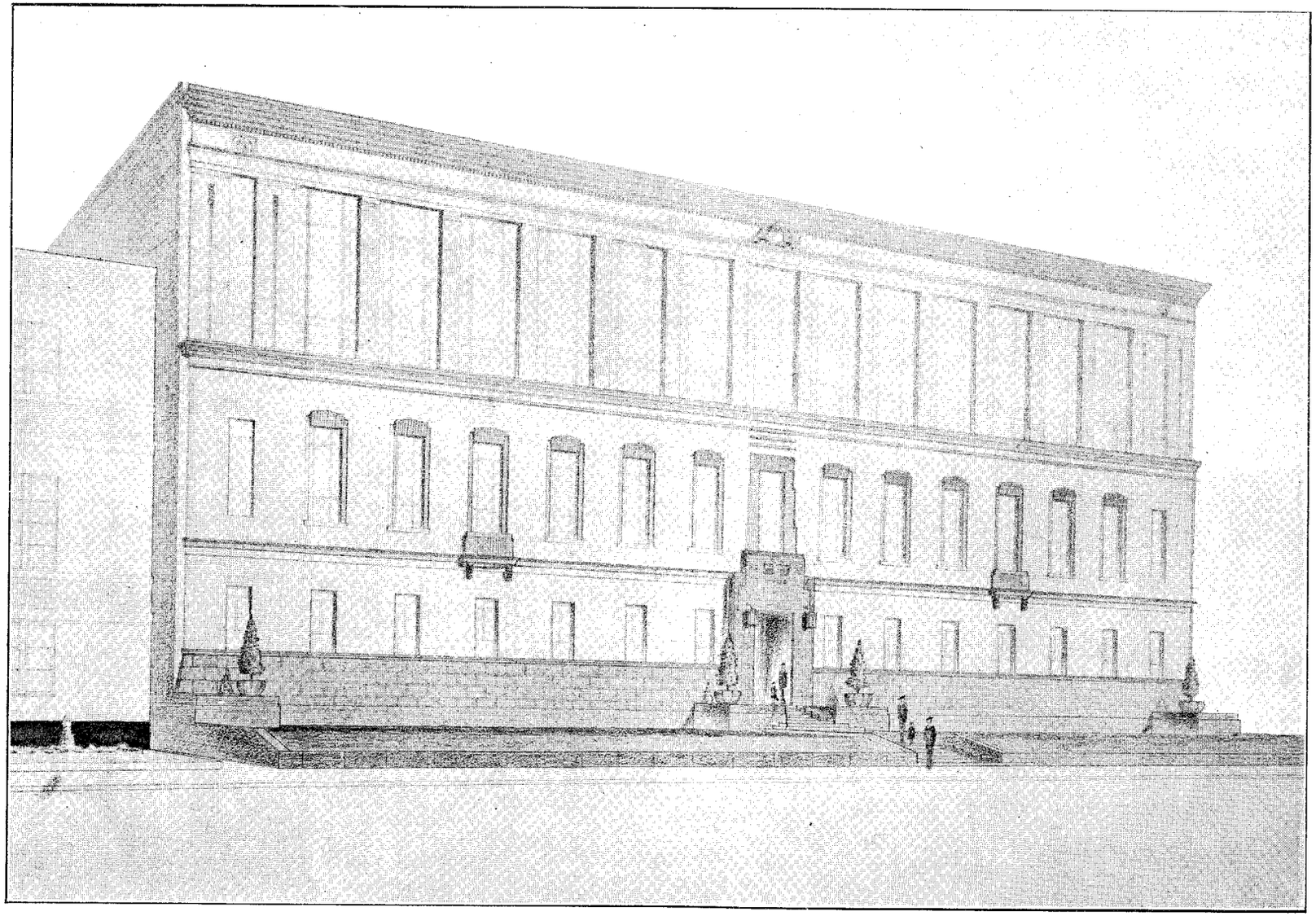
Reference should be made here to the passing of the Dentists Act, 1936, in the administration of which this Department will be closely concerned. The Act provides for the establishment of a Dental Council, which will be responsible for the registration of dentists (instead of the Registrar-General as heretofore), and which will have certain disciplinary powers in connection with the practice of dentistry. The Act comes into force on the 1st June, 1937.

The hours observed by School Dental Clinics have been altered during the year on account of the introduction of the five-day week in the Public Service, longer hours being observed on each working-day. The indications are that the volume of work will not suffer by the change. The introduction of electrical units for the dental engines has had a beneficial effect in lessening the physical strain and accelerating the work. One hundred of these units have been installed during the year, and it is expected that in due course all clinics at which electric power is available will be so equipped.

Once again I have pleasure in acknowledging the ready assistance and co-operation of Education Boards and their staffs, and also of teachers in all parts of the Dominion.

The depleted staff of the Division has rendered splendid service during the year, in face of difficulties caused by the influx of five-year-old new entrants, loss of time due to the epidemic, and shortage of trained staff. On the other hand, the staff are greatly heartened by the knowledge that the development of the Dental Service has been resumed, and that with the increased activity of the training-school the reinforcement of the field staff is in sight.

J. Ll. Saunders, Director, Division of Dental Hygiene.



THE NEW DENTAL CLINIC AND TRAINING-SCHOOL FOR DENTAL NURSES TO BE ERECTED IN UPPER WILLIS STREET, WELLINGTON.

CENTRES AT WHICH SCHOOL DENTAL CLINICS WERE ESTABLISHED AS AT 31ST MARCH, 1937.

Main Treatment Centres.	Authorized Sub-bases.	Main Treatment Centres.	Authorized Sub-bases.
Auckland District.			
Avondale	Avondale South.	Ngatea	Kaihere, Kerepehi, Turua, Waitakaruru.
Birkenhead	..		
Cambridge	..	Onehunga	..
Dargaville	Te Kopuru, Ruawai.	Opotiki	Maraenui, Tancatua, Torere.
Devonport	..	Otahuhu	..
Ellerslie	..	Paeroa	..
Normal School, Mount Eden	..	Papakura	..
		Ponsonby	..
Gisborne No. 1	..	Pukekohe	..
Gisborne No. 2	..	Rotorua	Mamaku.
Gladstone Road, Auckland	Mount Albert.	Sandringham	..
Grey Lynn	..	Tauranga	Te Puke.
Hamilton East	..	Te Aroha	..
Helensville	Huapai.	Te Puke – Totara	Maketu, Matata, Poroporo, Pukehina, Ruatoki, Tawera, Te Teko, Waiohau.
Henderson	Glen Eden.		
Huntly	Pukemiro, Te Kauwhata.		
Manurewa	..		
Matamata	..	Thames	Coromandel
Maungawhau, Auckland	..	Tikitiki	Ruatoria, Te Araroa.
Morrinsville	..	Waihi	..
Mount Eden	..	Warkworth	Wellsford.
Mount Roskill	..	Whangarei	Horahora, Whau Valley.
New Lynn	..	Whangarei	..
Ngaruawahia	Glen Massey, Raglan.	Whitiora, Hamilton	..
Wellington District.			
Blenheim	..	Palmerston North (Kingsway)	..
Carterton	Greytown.		
Dannevirke	..	Palmerston North (College Street)	..
Eketahuna	Tiraumea, Woodville.		
Eltham	..	Palmerston North (Terrace End)	..
Featherston	Martinborough.		
Feilding	..	Patea	Waverley.
Gonville	..	Petone	..
Hastings	..	Picton	Havelock, Rai Valley.
Hastings (Country)	..	St. John's Hill, Wanganui (Mobile Clinic)	Country schools from Turakina to Nukumaru.
Hawera	..		
Inglewood	..	Shannon	Eastbourne.
Levin	..	Stratford	..
Lower Hutt	..	Taihape	Mangaweka.
Manaia	..	Taumarunui	Kakahi.
Marton	Hunterville.	Te Awamutu	..
Masterton	..	Te Kuiti	Waimiha.
Masterton (Country)	..	Upper Hutt	..
Napier	..	Waipawa	Otane
New Plymouth	..	Waipukurau	Porangahau.
New Plymouth (Country)	..	Wairoa	..
Ohakune	Raetihi.	Waitara	Awakino.
Ormondville	Takapau, Otaki.	Wanganui (Keith Street)	..
Otorohanga	Piopio.	Wanganui East	..
Pahiatua	Pongaroa.	Wellington	..
Canterbury District.			
Ashburton West	..	Rangiora	..
Ashburton East	Tinwald.	Reefton	Inangahua Junction, Murchison, Waiuta.
Beckenham	Opawa.		
Brightwater	Richmond, Stoke, Tahunanui, Wakefield.	Runanga	Blackball, Taylorville.
		St. Albans	..
Christchurch East	..	Shirley	..
Fairlie	Pleasant Point.	Somerfield School, Christchurch	..
Geraldine	..		
Greymouth	..	Southbridge	Leeston.
Hawarden	Hanmer Springs, Kaikoura.	Sumner	..
Hokitika	Harihari, Kokotahi, Ross, Waiho Gorge, Wataroa, Weheka.	Sydenham	..
		Takaka	Collingwood.
		Temuka	Winchester.
Hornby	..	Timaru (Main)	West School.
Kaiapoi	Waimairi.	Timaru (Waimataitai)	..
Linwood	..	Waimate	..
Lyttelton	..	Westport	Denniston, Granity, Hector, Karamea, Millerton, Seddonville, Stockton, Waimangaroa.
Motueka	Upper Moutere.		
Nelson	..		
New Brighton	..		
Papanui	..	Woolston	..
Rakaia	Methven.		
Otago District.			
Alexandra	Clyde, Cromwell, Pembroke, Queenstown.	Oamaru	..
		Oamaru (Country)	Kurow.
Balclutha	..	Otautau	Nightcaps, Ohai.
Dunedin Central	..	Palmerston, Otago	Seacliff.
Dunedin (Macandrew Road)	..	Port Chalmers	..
Forbury	..	Ranfurly	Middlemarch, Naseby, Omakau, Oturehua.
Gore	Mataura.		
Invercargill	..	Tapanui	Lawrence, Roxburgh.
Kaitangata	Clinton.	Winton	..
Milton	..	Woodlands	Bluff, Stewart Island.
Mosgiel	Green Island.	Wyndham	Edendale.

PART VI.—DIVISION OF NURSING.

I have the honour to present my annual report for the year ended 31st March, 1937. The year has been a very busy one, and a very definite advance has been made in nursing-conditions both in public and private service.

Training of Nurses.

The nurses and Midwives Board met four times during the present financial year—*i.e.*, in April, August, December, and February. There was one change in the personnel of the Board, Miss Muir's term of office being completed, and, as in future she intends to live in Australia, the New Zealand Registered Nurses' Association's nominee, Miss B. Campbell, Matron of the New Plymouth Hospital, was appointed to the Board. Mr. W. Wallace of the Auckland Hospital Board was renominated by the Hospital Board's Association and appointed for a further term of three years.

The principal business of the Board this year has been the consideration given to the alteration in the system of examinations for nurses. In April the Registrar met the matrons of training-schools to discuss points arising out of the proposed changes, and the Registration Board is grateful for the assistance and ready co-operation given to it.

It was decided in future the following system should be followed :—

(*a*) On the completion of one year of training and some time prior to one year and seven months, every pupil nurse must sit for a Preliminary State Examination, which will comprise one paper in anatomy and physiology, and one paper in elementary nursing and hygiene, and the pupil nurse must pass this examination before she can proceed further with her training.

The object of this examination, which substitutes the preliminary examination held by each individual training-school, is to as far as possible ensure a similar standard of teaching in these subjects throughout the various schools of the Dominion, and to also ensure that the pupil nurse is being taught the preventive as well as the curative aspect of disease.

(*b*) The Final State Examination has also been altered, and now consists of three papers—one in surgical nursing and one in medical nursing, both set by doctor examiners; and also a paper in nursing procedures (set by a nurse examiner).

(*c*) The oral examination of nurses at examination centres has been cancelled and replaced by a practical clinical examination conducted in the wards of all hospitals which are training-schools by specially selected nurse examiners wearing the nursing uniform. This examination is conducted a week after the written examination.

The change was made in December and after the first experience of this examination the reports from the matrons of the training-schools and nurse examiners are all in its favour. It is realized that this will ensure more attention being focused on the actual manner in which nursing procedures are carried out, and will emphasize the importance of the nurses' practical work.

Thirty-seven inspectional reports on training-schools were received and the necessary action taken to have various reforms and amendments recommended therein carried out in the training-schools affected.

Reconsideration was given by the Board to its decision to cancel one training-school, and on condition that certain definite changes were made the institution was permitted to continue as a school. The applications of several small hospitals to be approved as training-schools also received consideration during the year.

One maternity training-school was cancelled, as the Board considered, through the failure of the Hospital Board to engage sufficient domestic assistance, the training of the maternity trainees was being adversely affected.

Disciplinary action was taken in regard to several nurses and midwives. One midwife applied to the Board for further consideration of its decision to reprimand her, and, in consequence, an inquiry was conducted by the Board in the town to which she belonged, and the result of this was that the previous decision of the Board was confirmed.

The public hospital at Wairoa has been approved as a "B" grade training-school, with permission to prepare nurses for the Preliminary Examination.

The Jessie Hope Gibbons Hospital, Wanganui, and the Otaki Maternity Hospital, have been approved as maternity training-schools.

Hospital Inspection.

Hours of Work.

This year, as a result of the policy of the Government to introduce shorter working-hours, a great deal of time has been spent in investigating the possibilities of reducing hours of work, both of nursing and domestic staffs. An amendment was made to the Hospitals and Charitable Institutions Act, giving the Government power to draw up regulations governing the hours of work in all hospitals, both public and private. Various difficulties have been met with. It may therefore be of interest to summarize them as follows :—

(*a*) *Nurses in General Hospitals.*

In the majority of training-schools, and in hospitals which are not training-schools, the pupil nurses and other nursing assistants work a three-shift duty—from 6 a.m. to 2 p.m.; 2 p.m. to 10 p.m.; 10 p.m. to 6 a.m.; with a day off a week. This means that exclusive of meal-hours they are on duty forty-two hours a week. Some additional time—generally not more than two hours a week—is also required to be spent at lectures.

As a rule qualified nurses in these hospitals work eight to nine hours a day, exclusive of meals, and have a day off a week, thus equalling forty-four to forty-eight hours a week. These hours are not considered unreasonable.

On the other hand there are still a few hospitals where nurses work an eight-hour day exclusive of meals, and only have two days off a month. During the year the number of these hospitals has decreased, as additions to the buildings have provided more staff accommodation and made possible an increase in staff. Within a few months it should be possible for all institutions to be able to put into effect the shorter hours.

If any additional reductions are to be made this will probably require a complete change of policy, with a different system of training altogether, which will involve considerable additions to the staff and buildings.

(*b*) *Maternity and Midwifery Training-schools.*

The weekly hours worked in these hospitals throughout the Dominion are forty-eight hours, exclusive of meals. A very careful investigation was made into this matter, and if the present system of case assignment is continued it was found impossible to reduce these hours without extending the period of training.

It was decided that it would be a very retrograde step to lower the standard of training in any way, and not desirable to increase the period of training, as the period of training in obstetrical nursing is now longer in New Zealand than in most other countries. Maternity hospitals as a whole are small, and the maximum use is made of them as training-schools so as to permit as many maternity nurses as possible being trained; but on account of their limited number of patients more nurses cannot be employed without reducing the amount of clinical experience at present required.

In view of these facts the Government has agreed to the hours of maternity and midwifery trainees being retained at forty-eight hours a week, particularly as the term of training is limited.

Qualified nurses in these hospitals work a forty-eight hour week, but the total number per week is reduced to average forty-four hours by giving three weeks' leave twice a year instead of four weeks annually as previously.

Any other arrangement meant a lack of continuity in the supervision which is so essential for the welfare of the patient.

(*c*) *Domestic Service.*

As each hospital has been revisited an inquiry has been made into the hours worked by the domestic staff. In many instances it was found that these ranged from forty-eight to fifty-six hours weekly, and in a few cases slightly longer. In the State hospitals a reduction has been made to forty-two hours a week, and in the majority of hospitals an endeavour is being made to reduce the hours to forty-four hours a week. Some have already accomplished this, but great difficulty is being experienced by other hospitals, particularly those in country districts, in obtaining competent domestic help. Wages have risen considerably, but even the increase in wages has not provided a solution of the difficulty.

Nursing Technique.

Visits of inspection continually reveal the great need for the closest supervision of all nursing procedures, and the examination of the technique of all procedures in the light of modern bacteriological knowledge. It should be, and is, I am sure, considered a disgrace if transference of infection takes place in a hospital. If all patients were treated in such a way that detailed asepsis was followed in connection with every case, all danger would be avoided. Some may think this is the counsel of perfection, but it is possible to carry out this system, particularly if patients were nursed on the case-assignment method as is done in obstetrical hospitals. Admittedly it would entail increased staff, but it would ensure better care of the patients and better training of the nurses.

Dunedin Hospital, which during the poliomyelitis epidemic had as many as 140 cases at one time, perfected the detail of their nursing technique with great success, and are to be congratulated on the fact that no member of the staff contracted the disease.

Hospital Staffing.

During the year, because of difficulties in obtaining satisfactory staff, there have been insistent demands from some Hospital Boards to have various small hospitals approved as training-schools. Consideration has been given as to whether these hospitals have the necessary variety of clinical material, also whether they have proper facilities for adequate preliminary training. A training-school cannot be established merely because it ensures stability of staffing.

Some hospitals of from thirty to sixty beds never experience any undue difficulty with staffing problems, while there are others continually in trouble in this matter, which it is evident arises because those in charge do not understand the problem of controlling a staff largely composed of registered nurses, which is a very different problem from that of controlling one consisting of pupil nurses. At the moment it must be admitted there is a shortage of junior trained nurses willing to accept staff nurses' positions at £80 to £100 per year. This is due to several factors:—

(*a*) The increased number of qualified nurses employed by all Hospital Boards (a matter of congratulation, as it ensures a better standard of care of the patients).

(*b*) The decrease in the number of entrants accepted in the year 1932–33, due to the effect of the depression, so that a smaller number of nurses have been sitting for the State Examinations. (This position will rectify itself this year.)

(*c*) In 1932 the period of training was increased by three months, which caused a further delay in nurses qualifying.

(*d*) A very large number of nurses over the past eighteen months have left New Zealand for overseas experience, and the number known to this office who have left during the last six months of this financial year was 120.

(*e*) Better times generally have meant that many more nurses are kept continuously busy in private nursing, which, at four guineas a week, appears to be more remunerative and also allows the nurse freedom to move about New Zealand if she wishes.

Hospital staffs everywhere have been increased owing to the increased use of hospital beds. An examination of the attached table will show that there is a large increase in the number of occupied beds in training-schools consequently, partly due to this fact and partly because of the more general allowance of a day off a week, the number of pupil nurses has increased. However, with the larger number of nurses qualifying this year the problem of staffing should be solved.

A. *Daily Average Occupied Beds for all Training-schools.*

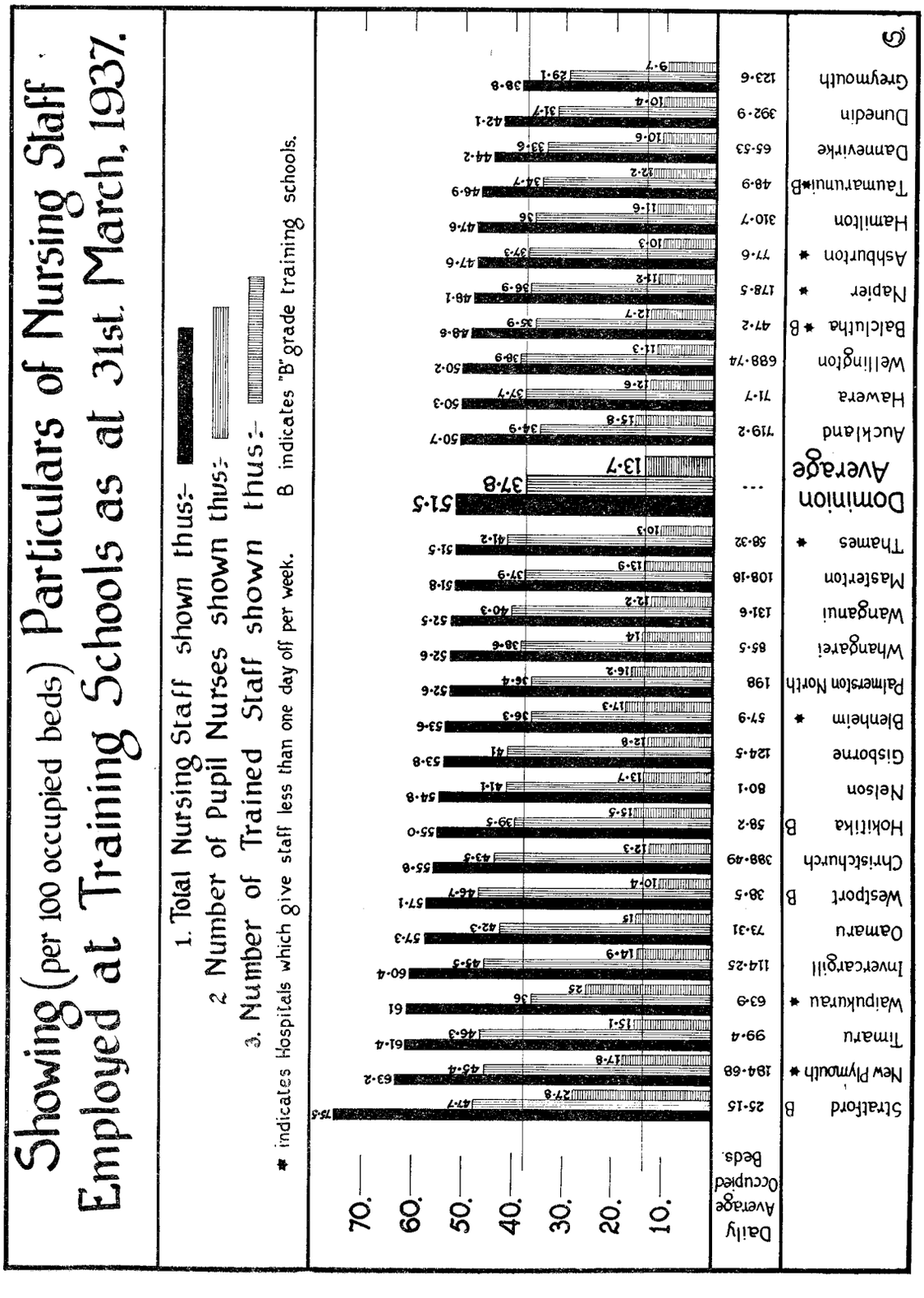
31st December, 1932.	31st December, 1933.	31st March, 1935.	31st March, 1936.	31st March, 1937.
3,981·72	4,059·3	4,220·05	4,467·41	4,734·85

B. *Total Nursing Staff for all Training-schools.*

	1932.	1933.	1934.	1935.	1936.
Total nursing staff	1,769	1,967	2,116	2,264	2,442
Total pupil nurses on staff ..	1,257	1,412	1,502	1,640	1,803
Total registered nurses on staff ..	512	555	614	624	639

C. *Total Number of Nurses Sitting and Passing State Examinations.*

	1932.	1933.	1934.	1935.	1936.
Number sitting	385	448	403	354	380
Number passed..	272	338	280	262	315



Obstetrical Hospitals.

The staffing of obstetrical hospitals with competent doubly qualified sisters holding a midwifery certificate has also been difficult. The number of midwives trained each year is approximately sixty, several of whom return to the staff of general hospitals because the salaries for these positions are more attractive. For instance, one Hospital Board recently advertised for a Sister with a double qualification at £105 per annum, whilst Ward Sisters in the general hospital under the same Board commence at £125 per annum.

During the year the Nurses and Midwives Registration Board circularized all Hospital Boards controlling maternity annexes which are training-schools, pointing out the necessity for making these charge positions more attractive from a remunerative point of view if the right type of women were to be attracted. This position, however, is now much more satisfactory.

Examination Results :—

MATERNITY NURSES.

Registered Nurses.

	1932.	1933.	1934.	1935.	1936.
Number sitting	152	158	170	190	195
Number passed	143	148	108	180	189

Unregistered Nurses.

	1932.	1933.	1934.	1935.	1936.
Number sitting	35	43	33	34	43
Number passed	30	35	30	33	37

MIDWIVES.

Registered Maternity Nurses who are also Registered Nurses.

	1932.	1933.	1934.	1935.	1936.
Number sitting	45	48	53	57	58
Number passed	39	44	47	53	56

Registered Maternity Nurses who are not Registered Nurses.

	1932.	1933.	1934.	1935.	1936.
Number sitting	14	14	18	14	9
Number passed	11	12	13	13	7

Health of Nursing Staffs.

It will be remembered that during the past three years a special study concerning the health of nursing staffs has been undertaken conjointly with the International Council of Nurses. Questionnaires in this connection were again this year issued to all training-schools for nurses, and an examination of the detailed information available as to the number of nurses off duty suffering from various types of illnesses reveals a very large percentage due to such common conditions as colds (46), influenza (123), septic fingers and boils (237), tonsilitis (206). Out of a total of 1,983 pupil and registered nurses 14 suffered from erythema nodosum, 15 from pleurisy, and 8 from tuberculosis (of whom three died).

There is no doubt that more care is now being exercised in the physical examination of pupil nurses, and that hospital authorities are alive to the need for greater attention being paid to this matter.

This very important subject is being given much thought abroad. In a recent publication entitled "Tuberculosis among Nurses," published by the Canadian Hospital Association, it is stated that regulations are now to be enforced in Ontario to ensure—

(*a*) Applicants for training have a complete detailed examination before acceptance, together with an X-ray examination of the chest, vaccination, inoculation with T.A.B., and a Mantoux skin test.

A routine annual medical examination and X-ray examination of the chest, or special examination when considered necessary. A routine Mantoux skin test every six months. Routine weighing every month.

(*b*) Improved facilities for treatment and diagnosis.

During the past year the present Government has passed legislation which enables a Hospital Board to grant a special pension to any nurse who has contracted tuberculosis whilst in their employ. This will assist many, but the important aspect is to prevent the need arising for this pension, and it would appear that the time has come when the above examinations, &c., should be enforced by regulation in this country.

The report already referred to also stresses the very great importance of nursing technique, and points out the dangers of the presence of the undiagnosed case in the general wards of a hospital.

So that, in stressing the fact that our nursing technique in New Zealand should be carried out in such a way as to ensure that every patient in hospital is treated so aseptically that transference of infection is impossible, we are only stressing what other countries are enforcing.

There is no doubt that, apart from tuberculosis, much preventable illness could be avoided if the practice and theory of personal hygiene were more emphasized, and it behoves those in charge of nurses to keep this fact constantly in mind. The actual economic loss alone from the amount of sickness caused by the common ailments mentioned is a serious matter.

Public Health Nursing Activities.

This year an addition to the staff of six district health nurses and four school nurses, together with the agreement made with the Palmerston North Hospital Board for the eight nurses employed by that Board to carry out generalized public-health work in their districts, has enabled a much better distribution of the district nurses' work in the rural areas of the North Island.

In the future, if the school nurses' duties are extended to include a more generalized programme, it would appear that the title might be changed to that of district health nurse also, and her activities be concentrated to a smaller district. In this way the South Island might be covered in the same way as the North Island.

If this policy were adopted it would have the advantage of the district health nurse becoming a unit of the community in which she lives.

With the new additions to staff there have been many changes, as it was considered expedient to transfer some of the older nurses at the same time.

Staff education has been carried out by means of group conferences and circulars made up of extracts from leading nursing journals. I consider that at least one group conference should be held annually in each health district, but it is necessary, if these are to be of the fullest use, to have a carefully prepared agenda with various members of the field staff participating by being made responsible for subjects of discussion.

Health education, both among the Maori and European adult population, as well as among school-children, forms a large part of the nurses' duties. The nurses frequently require help in the form of posters and subject material, and I consider definitely that, as the work has grown to such an extent, an attempt should be made at the time of group conferences to have some instruction given as to how the material may be best presented.

Attached is a comparative table covering the work of those district health nurses who are largely engaged in Maori work. It will be seen that the number of nurses has steadily increased, with a corresponding increase in work. This increase in staff in several instances is for the past five months only, so that it will be reflected to a greater extent next year.

	1935.		1936.	
Total number of nurses	28		34	
	European.	Maori.	European.	Maori.
Total number of individuals treated	1,095	31,977	1,078	35,799
Total number of treatments given ..	1,633	44,107	1,604	47,514
Maternity cases—				
Confinements	18	215	9	245
During puerperium	20	525	9	615
Complicated maternity cases		45	..	28
Maternal deaths		5	..	4
Ante-natal and post-natal—				
Number of ante-natal cases		2,169	..	2,504
Number of post-natal cases		2,054	..	1,889
Infant welfare—				
Number of infants seen		7,472	..	9,424
Number of attendances		10,352	..	13,220
Number of visits paid to pas		6,165	..	9,734
Schools visited—				
With doctor..	202	67	266	57
Without doctor	1,360	610	1,313	832

Post-graduate Education.

In December Miss E. R. Bridges returned from her eighteen months' study abroad. After completing her course in public-health nursing at the Florence Nightingale Memorial Foundation, she had the opportunity of reviewing nursing conditions in Central and Northern Europe as well as in Canada. In her reports Miss Bridges outlines the various methods by which many countries are making alterations in their schemes of training nurses, because they consider that in the past the various schemes of training were limited to the preparation of nurses for institutional nursing, and, as the majority of nurses find their future vocation either in private duty or in the public-health field, it is necessary to introduce into their training that which would give them a preventive and more socialized outlook. Probably to some extent this is also true in New Zealand, and should be given consideration.

Miss Bridges has been appointed Assistant Nurse Instructor to Miss J. Moore, who is in charge of the post-graduate course. The class this year consists of eighteen nurses, all of whom are doubly qualified, and many of whom hold their Plunket certificate in addition.

Hospital Boards continue to give bursaries to outstanding members of their staffs, and the New Zealand Nurses' Association has also granted a bursary this year.

The time has come when consideration might be given to a definite scheme for a limited number of bursaries for outstanding nurses entering the Civil Service, particularly for those preparing to do public-health and social work.

The system whereby Sisters from the Melbourne Women's Hospital have exchanged for a period of six months with Sisters from New Zealand Obstetrical Hospitals continues to function satisfactorily. This year Miss Julius, from the Alexandra Home, Wellington, has gone to Melbourne on exchange with Miss Spring.

The Canadian Mothercraft Society, Toronto, awarded a bursary to a Canadian nurse—Miss H. Adamson—to enable her to undergo her midwifery and Plunket training in New Zealand. Miss Adamson has nearly completed her course, and will soon be returning to Canada. It has been a pleasure to have a nurse from another British Dominion amongst us, and we wish her success in her new sphere of work.

Maori Nurses.

The arrangement whereby a Maori girl might win a nursing scholarship after two years' post-primary education, entitling her to £40 board allowance, which covered the cost of her board at a Maori secondary school while she attended a nearby hospital by the day for a year with the object of accommodating her to hospital life before commencing her training, has lapsed. In place of this agreement a new system of nursing scholarships has been created, whereby any outstanding Maori girl, after two years' post-primary education, can apply for a nursing scholarship which will entitle her to a further two years of post-primary education. The Health Department has undertaken, directly their school education is completed, to place these girls in maternity and general hospital training-schools, provided their record is satisfactory. This will enable them to proceed without any break. There is no doubt that this system will be much more satisfactory, ensuring as it will a good secondary education as the foundation on which to continue her further training. The Maori girl will enter the preliminary training-school in the usual manner, without a wasted period at home, and her instruction from the beginning will be properly supervised.

Tropical-nursing Scheme.

This year the nursing staff at the Government Hospital, Western Samoa, has been added to owing to the increase of work, and now consists of a Matron, 8 Sisters, and 40 Samoan nurses. A new Senior Sister—Miss V. Herdman—has been seconded from Waikato Hospital for service in Samoa to help with the training of the Samoan nurses in public-health nursing. A preliminary school is being developed, and this should make it possible to greatly improve the whole system of teaching.

An agreement has been entered into between the Administrations of Western Samoa and Niue Island so that, instead of attempting to train nurses in the hospital at Niue, two Niue girls are to be sent every year to Samoa for training as nurses.

At Rarotonga, in the Cook Islands, an experiment has been tried by placing at the hospital a well-qualified Maori nurse—Miss E. Paora—in charge of infant-welfare and district nursing on the island. This appointment has now been in existence for a year and is proving a success.

At Aitutaki, Miss Pierard, after a very busy two years, has been granted furlough to take her Plunket training in New Zealand.

In November, at the invitation of the Fiji Government, I paid a visit to the Fiji Islands. The purpose of my visit was to inspect the European School of Nursing at the Colonial War Memorial Hospital, Suva, and to survey the nursing activities in the Fiji Islands as a basis for the establishment of a scheme of training Fijian girls as nurses, and perhaps Indian girls at a later date.

My itinerary also included a visit to the Leper Station at Makogai. This station serves the British Possessions in the South Pacific, and is staffed by nuns (of the Missionary Order of Mary), who are under the control of the Fiji Administration. The station is wonderfully organized, and nothing but praise can be given to the devoted service given to these patients.

The recommendations made are under consideration by the Fijian Government at present. Certain changes have already been made by increasing the number of European Sisters.

The New Zealand nurses serving on the staff of the Shanghai Municipal Council have written very interesting letters of their life and experiences in China, where the conditions are very different to those existing in New Zealand.

In September Miss E. Tennant, of the staff of the Rockefeller Foundation, who had been making a survey of nursing-conditions in the South Pacific, spent three weeks in New Zealand. Her visit was a definite inspiration to the many nurses she came in contact with, and as she was very generous in agreeing to address meetings, a large number throughout the Dominion were able to hear something of the more recent developments in nursing education in Europe, the United States, and Canada.

New Zealand Registered Nurses' Association.

The new Industrial and Conciliation Act passed in 1936 made it mandatory for different groups of individuals engaged in similar work to organize themselves into industrial unions, and gave power for these unions to apply to the Arbitration Court for an award governing the conditions of their work. Nurses in New Zealand have always realized that their association was the body through which reforms could be made, and the executive officers of the association are to be congratulated on the active steps they have taken during this year to organize their profession in such a way as will comply with the law, and at the same time protect their service to their patients. The action taken has been—

(*a*) The organization of an associate group of members representing all pupil nurses and maternity trainees.
(*b*) The voluntary reduction of hours of work in private hospitals.
(*c*) The limiting of hours of work for "special nurses."

Each of these will have far-reaching effects. The organization of nurses in training with the formation of their own committees to manage their affairs should give the young nurses good experience in accepting responsibility, and will probably lead in the future to some modified form of student government within the institutions.

The voluntary reduction of hours of certain private hospitals has already meant increases of staff, as quite a lot has been done quietly, but it means that when regulations are enforced the adaptation will be much easier. A very large number of private hospitals are now giving a day off a week.

The introduction of national health insurance during the coming year is bound to affect the hospital and public-health policy of the Dominion, and, in consequence, the nursing service. The new emphasis on preventive medicine will be further stressed, and it is quite possible that this, together with the policy of shorter working-hours, will introduce far-reaching changes in the training and working-conditions of nurses.

In conclusion, I would like to express my sincere thanks to the executive officers of the Hospital Boards, the voluntary nursing organizations, the New Zealand Registered Nurses' Association, and the officers of our own Department, both at Head Office and in the various districts, for their ready co-operation and assistance throughout the year.

M. I. Lambie,
Director, Division of Nursing.

PART VII.—MATERNAL WELFARE.

REPORT OF INSPECTOR OF MATERNITY AND PRIVATE HOSPITALS.

T. L. Paget, L.R.C.P. (Lond.), M.R.C.S. (Eng.).

PART I.—MATERNITY SERVICES.

The maternity services in New Zealand are substantially the same as those reported to exist in 1936. The main difference being the reduction in the number of private maternity hospitals from 211 to 191. This reduction was caused by twenty small private maternity hospitals ceasing operation. In spite of this reduction in the number of hospitals, 20,672 confinements, amounting to 81 per cent. of the total of 25,298, took place in maternity hospitals.

Table V gives the detailed results, and shows a death-rate of 2·37 per 1,000 confinements; this figure includes all patients either dying in the hospital in which they were confined or transferred to other institutions after confinement, but is not comparable with the general death-rate of 3·14, as abortions and ectopic gestations are not admitted to these hospitals, and some cases of pre-natal toxæmia are treated in medical and surgical hospitals.

It is notable that each year since 1927 (see Table II) the hospitalization of maternity cases has steadily increased, and that this increase coincides with a general falling of the death-rate due to complications of childbirth. (See Tables VIIa and VIIb.)

As pointed out in my previous report, maternity hospitals are so distributed over New Zealand that in only a few instances are isolated districts left without reasonable facilities for the hospitalization of patients. In those districts the only maternity services are provided by medical practitioners, district midwives, or midwives in private practice giving domiciliary service. A survey of the whole of the maternity services in New Zealand is now being undertaken by a committee appointed by the Hon. the Minister for that purpose, and should be of considerable assistance in determining what districts require further facilities, and what those facilities should be. Until that report is published I abstain from further comment.

Ante-natal Clinics.

The number of free ante-natal clinics which sent in returns has increased from 37 in 1935 to 39 in 1936. Of these 5 were conducted in connection with the St. Helens Hospitals, 18 in connection with public hospitals, 5 in connection with the Salvation Army and other charitable organizations' hospitals, and 11 conducted by the Plunket Society.

The majority of the cases attended other than in the Plunket Society's clinics are those booked to enter the hospital connected with the clinic, while most of the 1,676 patients attending the Plunket clinics were referred to the clinics by private practitioners under whose supervision the work was conducted. It is evident that the majority of medical practitioners really interested in obstetrics regard ante-natal care of their patients as a duty to be undertaken by themselves, and make only limited used of the free Plunket clinics conducted by midwives.

I anticipate that the work of these clinics will be more and more limited to giving mothercraft advice, leaving the obstetric examination to the patient's own medical adviser. Nevertheless, the midwife-conducted clinic has a distinct field of usefulness, providing there is effective co-operation with the patient's own medical adviser.

Table I gives returns for the years 1925–36. The 7,069 women who attended these clinics in 1936 represent 27·94 per cent. of the total confinements.

Table I.

Year.	Number of Clinics.	New Cases.	Return Visits.	Total Attendances.	Average Number of Attendances per Patient.
1925	16	2,289	7,816	10,105	4·41
1926	20	3,238	12,554	15,792	4·88
1927	20	3,919	15,406	19,325	4·93
1928	21	5,050	20,740	25,790	5·11
1929	24	5,177	17,555	22,732	4·39
1930	25	6,027	22,078	28,105	4·66
1931	28	6,306	22,869	29,175	4·63
1932	31	5,882	22,594	28,476	4·84
1933	33	5,978	25,794	29,772	4·98
1934	34	6,191	24,929	31,120	5·03
1935	37	6,725	26,662	33,389	4·96
1936	39	7,069	29,103	36,272	5·13

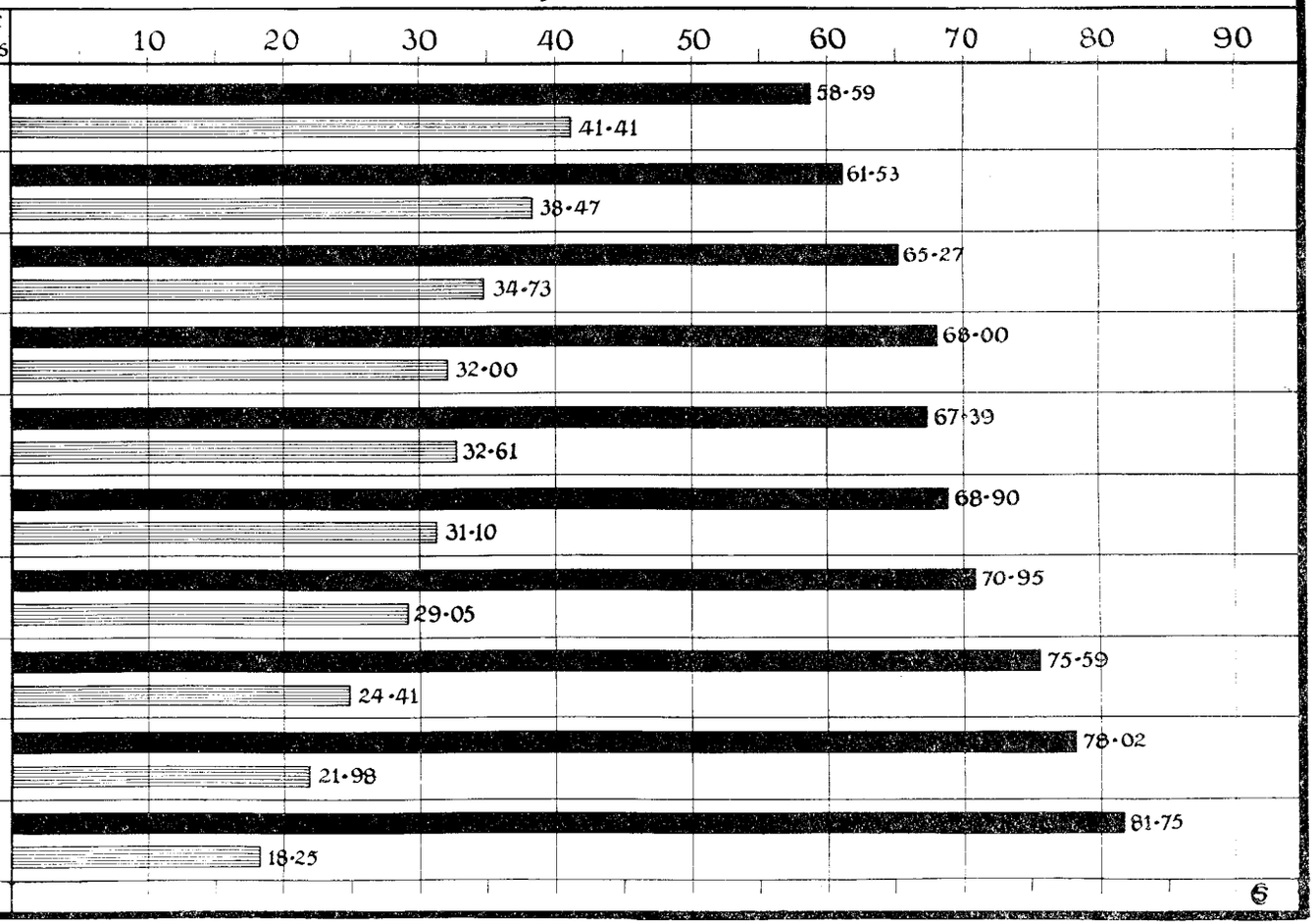
Table II.

Showing the Proportion of Confinements Conducted in Maternity Hospitals and in other places. 1927 to 1936.

Confinements Conducted in Maternity Hospitals shown thus:—

Confinements Conducted in other Places, that is in Private Houses and Medical and Surgical Wards of Public and Licensed Hospitals, etc. shown thus:—

Year	Number of Confinements	
1927	16650	58·59
	11770	41·41
1928	17080	61·53
	10678	38·47
1929	17845	65·27
	9495	34·73
1930	18600	68·00
	8753	32·00
1931	18291	67·39
	8851	32·61
1932	17548	68·90
	7919	31·10
1933	17567	70·95
	7193	29·05
1934	18712	75·59
	6043	24·41
1935	19034	78·02
	5361	21·98
1936	20672	81·75
	4626	18·25



General Hospitals (Medical and Surgical).

These hospitals take practically all the cases of puerperal pyrexia requiring isolation from patients in maternity hospitals, most of which are returned as cases of sepsis, however mild the infection may prove to be.

Besides admitting 24 patients for ante-natal treatment and 20 for the conduct of labour in emergencies, arising out of neglect on the part of the patient to make adequate arrangements, 296 cases were admitted to these hospitals for unforeseen complications arising during labour, and requiring surgical intervention or attendance by an obstetrical specialist. Of necessity the death-rate for the patients admitted to these hospitals for complications of labour is exceptionally high, and in 1936 was 5·69 per hundred, there having been 18 deaths in the total of 316 cases admitted for delivery. An analysis of the maternity cases treated in medical and surgical hospitals is given in Table III.

Table III.—Analysis of Maternity Cases treated in Surgical Hospitals, 1936.

Condition on Admission.	Number of Cases.	Result.	
		Recovered.	Died.
Ante-partum toxæmia	24	24	..
Post-partum sepsis	74	64	10
Post-partum eclampsia and toxæmia ..	8	7	1
Post-partum hæmorrhage	6	6	..
Emergency labours (normal cases)	20	20	..
Abnormal labours—			
Obstructed labour	110	107	3
Accidental hæmorrhage	27	23	4
Placenta prævia	23	21	2
Eclampsia and pre-eclampsia	98	92	6
Other conditions associated with pregnancy or parturition	148	137	11

The nature of the cases and the high death-rate show the severity of the conditions which these hospitals have to admit. The fatal cases enumerated under "Other Conditions" include two cases of empyæmia, one of typhoid, one of bronchiectasis, one of leukæmia (died undelivered), and one appendicitis.

Though it would be preferable if these patients, other than septic cases, could be treated in obstetrical hospitals, New Zealand's sparse and widely scattered population makes it impossible to provide a sufficient number of purely obstetrical hospitals with sufficient medical and nursing staff to take all such cases, but providing experienced obstetricians and midwives are available in the general hospitals the severe emergencies can and do receive adequate treatment therein, though at considerable inconvenience to the staff, due to lack of special wards. The most essential point with regard to the staffing of these hospitals from the obstetrical point of view is that the patient shall not depend upon the general staff of the hospital, but that an experienced obstetrical staff both medical and nursing shall be available for all severe emergencies.

Supervision of Maternity Services.

An inspection of maternity hospitals, both with regard to their equipment and to the obstetrical nursing, has been efficiently conducted by the Medical Officers of Health and the nurse inspectors, with a limited amount of supervision by myself. The number of inspections I have been able to make during the past year has been limited, owing to other urgent work which I have had to undertake.

I am, however, satisfied that in nearly all instances the hospitals fulfil their function by providing reasonable facilities for the work of the medical attendants and midwives, and a very valuable service without which the improved results, particularly with regard to puerperal sepsis, could not have been obtained. I am, moreover, satisfied that domiciliary service could not give the same quality of attention at anything approaching the moderate cost of attendance in these hospitals. It must, however, be recognized that the financial returns to the nurses establishing and conducting the smaller hospitals, of which there are over 100, are quite inadequate. This is recognized by some of the Hospital Boards who contribute towards the cost in the form of a subsidy. Unless this help is further extended Hospital Boards will be faced with the necessity of replacing many of these hospitals by public institutions, the capital cost of which would probably amount to not less than an average of £1,200 per hospital.

As a special committee has been set up by the Minister to undertake an extensive survey of the maternity services in New Zealand, I feel it better to await that report before making any suggestions with regard to the improvement of the services, except to say that it is obvious that some sparsely populated districts which are not at present well served will have to be provided with more adequate services, and in some instances the Boards will have to undertake to provide small public maternity hospitals where in the past they have depended upon private enterprise.

Tables IV and V give a numerical analysis of the cases attended in the St. Helens Hospitals and the private and public maternity hospitals of New Zealand.

Table IV.—St. Helens Hospitals, General Statistics, 1936.

—	Auckland.	Wellington.	Christchurch.	Dunedin.	Invercargill.	Totals.	Percentage to Total Deliveries.
A. Intern Department.							
Total deliveries	652	526	372	168	284	2,022	..
Primiparae	202	117	99	37	71	526	26·27
Multiparae	450	409	273	131	213	1,476	73·73
Presentations—							
Vertex normal rotation	594	500	332	152	257	1,835	91·66
Occipito posterior (persistent)	32	11	23	11	13	90	4·50
Face	2	..	..	2	..	4	0·20
Brow	..	..	..	..	..	..	..
Breech	24	16	15	3	14	72	3·60
Transverse	1	..	2	..	1	4	0·20
Twins (sets)	6	8	3	..	1	18	0·90
Complications of pregnancy—							
Hyperemesis	..	1	..	..	..	1	0·05
Hydramnios	..	1	3	4	..	9	0·45
Pre-eclamptic toxæmia	25	44	3	4	20	96	4·80
Eclampsia	2	1	..	..	1	4	0·20
Nephritic toxæmia	..	1	3	1	..	5	0·25
Hæmorrhages—							
Unavoidable (placenta prævia)	6	..	6	..	3	15	0·75
Accidental, external	8	2	3	..	1	14	0·70
Accidental, internal	1	1	..	..	..	2	0·10
Post-partum, atonic	12	2	6	3	6	29	1·45
Post-partum, traumatic	1	..	..	..	..	1	0·05
Lacerations of genital tract—							
Perinæum	45	57	52	30	38	222	11·09
Cervix	..	..	3	2	1	6	0·30
Uterus	..	..	..	..	..	..	..
Contracted pelvis, inlet	..	..	2	1	3	6	0·30
Contracted pelvis, outlet	..	..	5	..	1	6	0·30
Prolapse of cord	4	4	2	..	1	11	0·55
Complications of puerperium—							
Sepsis, local	..	1	4	..	3	8	0·40
Sepsis, general	1	..	..	..	..	1	0·05
Pulmonary embolism	..	2	..	1	1	4	0·20
Insanity	..	..	..	..	..	..	..
Crural phlegmasia, venous	..	..	..	..	..	..	..
Crural phlegmasia, lymphatic	..	..	..	..	..	..	..
Mastitis	8	1	2	1	1	13	0·65
Operations—							
Internal pelvimetry	..	..	1	..	..	1	0·05
Induction of labour	31	73	22	16	12	154	7·69
Episiotomy	..	23	4	2	3	32	1·60
Impacted shoulders	4	1	..	..	..	5	0·25
Suture of perineal lacerations—							
Complete	1	54	52	..	..	107	5·34
Incomplete	5	..	..	30	38	73	3·65
Suture of cervical lacerations	..	..	3	..	..	3	0·15
Forceps	19	10	17	12	9	67	3·35
Version, external	20	4	4	..	1	29	1·45
Version, internal	..	..	7	..	5	12	0·60
Version, combined	2	1	..	..	..	3	0·15
Manual removal of placenta	5	3	..	3	4	15	0·75
Cæsarean section—							
Abdominal conservative	6	1	4	..	..	11	0·55
Abdominal radical	..	..	..	..	..	..	..
Pubiotomy	..	..	..	..	..	..	..
Craniotomy	..	..	..	..	..	..	..
Cleidotomy	..	..	..	..	..	..	..
Decapitation	..	..	..	..	..	..	..
Morbidity	18	18	11	8	10	65	3·25
Mortality	3	..	..	..	1	4	0·20

Table IV.—St. Helens Hospitals, General Statistics, 1936—continued.

	Auckland.	Wellington.	Christchurch.	Dunedin.	Invercargill.	Totals.	Percentage to Total Deliveries.
A. Intern Department—*continued.*							
Infant statistics—							
Total births	659	527	376	168	285	2,015	100·65
Premature—							
Alive	31	15	16	..	11	73	3·65
Dead	14	9	6	1	2	32	1·60
Recent	8	..	6	..	..	14	0·70
Macerated	6	9	..	1	2	18	0·90
Putrid	..	..	..	..	..	..	..
Full term—							
Alive	600	503	339	163	268	1,873	93·56
Dead	13	15	14	..	4	46	2·30
Recent	12	8	14	3	4	41	2·05
Macerated	1	7	..	..	..	8	0·40
Putrid	..	..	..	..	..	..	..
Children born alive who died in hospital	11	7	6	1	3	28	1·40
Total born dead or died in hospital	38	31	26	5	9	109	5·44
B. Extern Department.							
Total attendances—							
Primiparae	1	..	..	..	..	1	..
Multiparae	69	21	77	..	1	168	..
Forceps application	2	..	7	..	..	9	5·33
Morbidity	1	..	..	..	..	2	1·18
Mortality	..	..	..	..	..	..	..
C. Ante-natal Clinics.							
First visits—							
Primiparae	221	143	127	42	70	603	..
Multiparae	549	426	352	118	195	1,640	..
Return visits	4,083	2,826	2,359	597	874	10,739	..
Outside visits	75	449	726	..	..	1,250	..
Outfits sterilized	163	58	110	46	53	430	..

Table V.—Statistics of Maternity Hospitals, 1936.

—	Number of Hospitals.	Patients admitted.	Confined at Full Term.	Number of Patients confined between Seventh Month and Full Term.	Total Number of Confinements.	Number of Abortions—*i.e.*, Delivery before the Seventh Month.	Number of Operations.									Hæmorrhages.			Eclampsia.	Number of Deaths of Mothers.	Number of Deaths of Infants who were born alive.	Number of Infants born dead.		Number of Patients transferred to other Hospitals.		Deaths of Transferred Maternity Patients.	Maternal Mortality.		
							Instrumental Delivery.	Version.			Dilation of Cervix.	Manual Removal of Placenta.	Cæsarian Section.		Craniotomy, &c.	Accidental Hæmorrhage.	Unavoidable Hæmorrhage (Placenta prævia).	Post-partum Hæmorrhage.				Probably before Labour.	Probably during Labour.	Before Delivery.	After Delivery (Mothers only).		Puerperal Causes.	Non-puerperal Causes.	Total Maternal Mortality.
								External.	Internal.	Combined.			Primary.	Secondary.															
Maternity Hospitals—*i.e.*, admitting maternity cases and urgent miscarriage cases only—																													
Group I: 1–100 cases per annum—																													
Totals	154	8,147	6,649	366	7,015	38	644	14	33	6	26	50	..	..	4	16	19	92	36	7	127	123	71	47	56	7	12	2	14
Percentages to total confinements	..	..	..	..	..	..	9·18	0·20	0·47	0·09	0·37	0·71	..	..	0·06	0·23	0·27	1·31	0·51	0·100	1·81	1·75	1·01	0·67	0·80	0·100	0·171	0·029	0·200
Group II: Over 100 cases per annum—																													
Totals	58	9,828	8,987	446	9,433	41	1,009	30	20	23	62	68	6	1	6	27	34	95	39	21	162	169	105	53	119	6	24	3	27
Percentages to total confinements	..	..	..	..	..	..	10·70	0·32	0·21	0·24	0·66	0·72	0·06	0·01	0·06	0·29	0·36	1·01	0·41	0·223	1·72	1·79	1·11	0·56	1·26	0·063	0·254	0·032	0·286
Group III: St. Helens Hospitals—																													
Totals	5	2,167	1,903	99	2,003	3	67	29	12	3	14	15	11	..	3	16	15	30	4	2	28	54	27	5	15	2	3	1	4
Percentages to total confinements	..	..	..	..	..	..	3·34	1·45	0·60	0·15	0·70	0·75	0·55	..	0·15	0·80	0·75	1·50	0·20	0·100	1·40	2·70	1·35	0·25	0·75	0·100	0·150	0·050	0·200
Totals, Groups I, II, and III—																													
Totals	217	20,142	17,539	911	18,450	82	1,720	73	65	32	102	133	17	1	13	59	68	217	79	30	317	346	203	105	190	15	39	6	45
Percentages to total confinements	..	..	..	..	..	..	9·32	0·40	0·35	0·17	0·55	0·72	0·09	0·01	0·07	0·32	0·37	1·18	0·43	0·163	1·72	1·88	1·10	0·57	1·03	0·081	0·211	0·033	0·244
Mixed Hospitals—*i.e.*, admitting maternity and medical and surgical cases—																													
Group IV: Mixed Hospitals—																													
Totals	55	2,326	2,130	92	2,222	37	227	1	6	1	9	16	..	..	..	12	8	32	8	2	44	45	24	22	26	2	3	1	4
Percentages to total confinements	..	..	..	..	..	..	10·22	0·05	0·27	0·05	0·41	0·72	..	..	..	0·54	0·36	1·44	0·36	0·090	1·98	2·03	1·08	0·99	1·17	0·090	0·135	0·045	0·180
All Hospitals—Groups I, II, III, and IV—																													
Totals	272	22,468	19,669	1,003	20,672	119	1,947	74	71	33	111	149	17	1	13	71	76	249	87	32	361	391	227	127	216	17	42	7	49
Percentages to total confinements	..	..	..	..	..	..	9·42	0·36	0·34	0·16	0·54	0·72	0·08	..	0·06	0·34	0·37	1·20	0·42	0·155	1·75	1·89	1·10	0·61	1·04	0·082	0·203	0·034	0·237
Group V: Cases confined in private houses and/or general wards of public hospitals—																													
Totals	..	..	..	..	4,626	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15	..	..
Percentages to total confinements	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0·324	..	..

PART II.—MATERNAL MORTALITY AND MORBIDITY.

The total number of maternal deaths from puerperal causes, excluding septic abortion, is the same this year as last—namely, 78—with a reduction of the death-rate from 3·25 to 3·14.

The graph and Tables VIIA and VIIB show the maternal-mortality rates from different puerperal causes. Reference to these show that the low death-rate from puerperal sepsis following childbirth, which was reached by successive drops since 1927 and attained its lowest rate in 1935, has suffered a slight rise, the number of deaths being 9 for the last year, with a rate of 0·36 as against 8 for the previous year, with a rate of 0·33. The rate is, however, still notably low, and is one-third to one-half of that of comparable countries. Deaths from hæmorrhages and accidents of labour show that the death-rate from this group is also substantially the same, there being a rise from 1·00 to 1·01. This is mainly due to the increase from 6 to 12 in the number of deaths attributable to placenta prævia. The other causes of deaths under this group all show a reduction.

Eclampsia and other Toxæmias of Pregnancy.

The number of deaths from this cause in the year under review contributed over 38 per cent. of the causes of maternal deaths.

Reviewing the past twelve years, in which great efforts have been made by the establishment of ante-natal clinics and better and greater effort on the part of the medical profession to reduce the frequency of this condition, one can only feel disappointed that so little has been achieved.

This condition not only contributes to our maternal death-rate, but is one of the principal causes of still-births and neo-natal deaths. Table VI shows that since 1925, when more intensive ante-natal work was undertaken in St. Helens and other hospitals, there has been a considerable drop in the number of eclampsia cases and neo-natal deaths in the St. Helens Hospitals, which are the only ones from which I can get records over a sufficient length of time to make comparisons.

Were the same returns available from many of the public hospitals, I have no doubt similar results could be shown.

Table VI.

Period.	Total Confinements.	Eclampsia.		Still-births.		Deaths of Infants of under Fourteen Days.	
		Number.	Rate per 100 Confinements.	Number.	Rate per 100 Confinements.	Number.	Rate per 100 Confinements.
1918–1924 ..	10,264	70	0·68	357	3·48	213	2·08
1925–1931 ..	16,020	49	0·31	439	2·74	239	1·49
1932–1936 ..	10,266	40	0·39	357	3·48	145	1·41

While the failure to get the same results over the whole Dominion may be attributed to deficient ante-natal attention given to patients, some of which is due to the lack of co-operation of the patients with their medical adviser and some due to insufficient supervision, I am definitely of the opinion that the important factor in preventing further reduction is lack of knowledge of the causes of the toxæmias of pregnancy, a lack of knowledge which is world-wide, and which has caused failure and disappointment in other countries as well as New Zealand.

This condition has been aptly called a "Disease of theories," and unless facts replace "theories" little advance is possible.

New Zealand, together with Canada and Australia, has, according to statistics, the highest death-rate from this condition of any known comparable countries, and has a rate approximately 50 per cent. higher than England, and three times that of Holland. Much might be done by systematic research into the causes of eclampsia, and no country seems to me to be likely to benefit more by such research or to be better fitted for undertaking a clinical research than New Zealand.

I hope that means will be made available to carry it out.

Accidents of Pregnancy.

Deaths from accidents of pregnancy, which include ectopic gestation and non-septic abortion, show a slight increase, the number of deaths having been 14, as against 12 for the previous year.

Table VII.

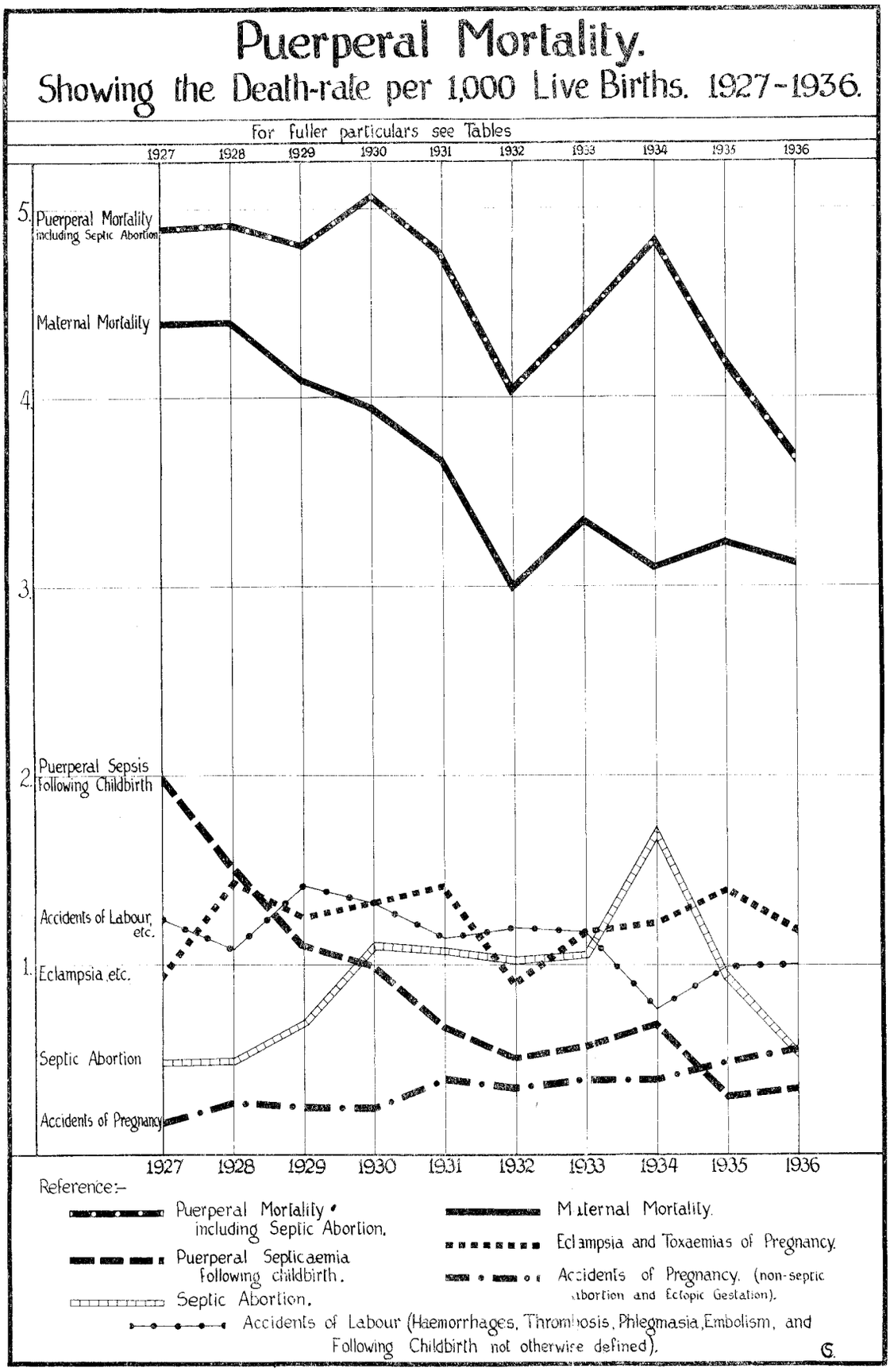

Puerperal Mortality.
Showing the Death-rate per 1,000 Live Births. 1927-1936.
For fuller particulars see Tables
1927 1928 1929 1930 1931 1932 1933 1934 1935 1936
5.
4.
3.
2.
1.
Puerperal Mortality including Septic Abortion
Maternal Mortality
Puerperal Sepsis Following Childbirth
Accidents of Labour, etc.
Eclampsia etc.
Septic Abortion
Accidents of Pregnancy
Reference:-
Puerperal Mortality including Septic Abortion.
Maternal Mortality.
Puerperal Septicaemia Following childbirth.
Eclampsia and Toxaemias of Pregnancy.
Septic Abortion.
Accidents of Pregnancy. (non-septic abortion and Ectopic Gestation).
Accidents of Labour (Haemorrhages, Thrombosis, Phlegmasia, Embolism, and Following Childbirth not otherwise defined).
G.

*Table VII*A.—*Showing the Number of Puerperal Deaths and the Death-rate per 1,000 Live Births, 1927–1936.*

—		1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934.	1935.	1936.
Puerperal sepsis following childbirth ..	No.	56	42	30	27	18	13	14	17	8	9
	Rate	2·01	1·54	1·12	1·01	0·68	0·52	0·58	0·70	0·33	0·36
Hæmorrhages, accidents of labour, thrombosis, phlegmasia, and following childbirth not otherwise defined	No.	35	30	39	36	31	30	29	19	24	25
	Rate	1·26	1·10	1·46	1·34	1·16	1·21	1·19	0·78	1·00	1·01
Toxæmia, albuminuria, and eclampsia	No.	27	40	34	36	38	23	29	30	34	30
	Rate	0·97	1·47	1·27	1·34	1·43	0·92	1·19	1·24	1·42	1·20
Accidents of pregnancy, non-septic abortion, and ectopic gestation	No.	5	8	7	7	11	9	10	10	12	14
	Rate	0·18	0·29	0·26	0·26	0·41	0·36	0·41	0·41	0·50	0·56
Total maternal deaths (excluding septic abortion)	No.	123	120	110	106	98	75	82	76	78	78
	Rate	4·41	4·42	4·11	3·96	3·68	3·02	3·37	3·12	3·25	3·14
Septic abortion—											
Married women	No.	14	14	19	26	26	24	16	29	17	13
Single women	No.				4	3	2	10	13	6	1
Totals		14	14	19	30	29	26	26	42	23	14
Rate		0·50	0·51	0·71	1·12	1·09	1·04	1·07	1·73	0·96	0·56

*TABLE VII*B.—*Puerperal Mortality, 1936, showing the Number of Deaths and their relation to Live Births.*

—			Number of Deaths.	Death Rate per 1,000 Live Births.
Puerperal sepsis following childbirth			9	0·36
Hæmorrhages, accidents of labour, thrombosis, phlegmasia, and other accidents of childbirth—				
(*a*) Placenta prævia	12	0·48		
(*b*) Other puerperal hæmorrhages	7	0·28		
(*c*) Puerperal embolism (non-septic)	1	0·04		
(*d*) Other accidents of childbirth—				
Collapse following complete inversion of the uterus	1			
Rupture of uterus—Cervical obstruction ..	1			
Contracted pelvis—Cæsarean section—Paralytic ileus	1	5	0·21	
Cæsarean section—Shock	1			
Post-partum shock—Difficult labour ..	1			
			25	1·01
Toxæmias of pregnancy—				
(*a*) Puerperal albuminuria and eclampsia	18	0·72		
(*b*) Other toxæmias of pregnancy	12	0·48		
			30	1·20
Accidents of pregnancy—				
(*a*) Abortion (non-septic)	9	0·36		
(*b*) Ectopic gestation	5	0·21		
			14	0·56
Total maternal deaths (excluding septic abortion)			78	3·14
Septic abortion—				
(*a*) Married women			13	
(*b*) Single women			1	
			14	0·56

Septic Abortion.

This cause of death, which is excluded from the general maternal death-rate, having no connection with obstetrics, and having no, or very little, connection with legally conducted obstetric procedures, has shown a remarkable decrease, the number of deaths in 1936 having dropped to 14, the same number as in 1927 and 1928. The whole question has been exhaustively investigated by a special committee set up by the Hon. the Minister of Health and covered in a special report to which those interested are referred. It is to be hoped that the decrease in the number of deaths reflects a decrease in the practice of illegal operations. One must feel, however, that there is some uncertainty with regard to this, as it might be due to the elimination of the more unskilled abortionist with greater safety to the patient.

Puerperal Sepsis following Childbirth.

The deaths from this cause as set out in Tables VII, VIIA, and VIIB show that the low rate has been substantially maintained, the number of deaths being 77 per cent. lower than in 1927, prior to which asepsis in obstetrics was not generally practised, nor were hospitals suitably equipped for carrying it out.

Analysis of the 102 cases of puerperal sepsis following childbirth investigated by the Medical Officers of Health shows that 90 cases have occurred in Europeans and 12 in Maoris. Of the former 9 died, giving a case-fatality rate of 10 per cent., and of the latter 2 died, giving a case-fatality rate of 16·5 per cent.

I again call attention to the following facts:—

The chief complication followed by sepsis was manual removal of the placenta, either with or without artificial delivery of the infant. The following figures are significant: The percentage of instrumental deliveries in septic cases was 26·47, as against a general instrumental rate of 9·14 per cent., as shown in Table V. The percentage of patients subjected to manual removal of placenta, either with or without artificial delivery of the infant, was 19·61 per cent., as against a rate for this operation of 0·71 per cent. shown in the same table.

As pointed out in my last year's report, these figures prove that artificial delivery of the infant increases risk of sepsis about $2\frac{3}{4}$ times, while the risk of sepsis if manual removal of the placenta is performed increases the risk of sepsis about 27 times. The fact that of the 20 manual removals followed by sepsis 7 were performed on the 18·25 per cent. of patients attended in domiciliary practice, shows that under those conditions the risk of sepsis is almost twice the risk when hospital facilities are available.

Cæsarean Section.

A review of the reports of cases delivered by Cæsarean Section for 1936 shows that 162 patients out of 25,298 confinements were delivered by this method, giving a rate of 0·64 per 1,000 compared with 0·59, 0·53, and 0·44 for 1935, 1934, and 1933 respectively. In Table VIII the cases have been divided into seven groups according to the reason given in the reports for selecting this method of delivery. Comparison with the table given in last year's report shows little variation in results and the only comment that I have to make is that the degree of contraction of the pelvis having been given in only a few cases it is probable that Groups I and II might have been well combined under the heading "Disproportion."

Table VIII.

Group.	Reason given for Operations and Parity.	Number of Cases.	Number of Deaths.		Cause of Deaths of Mother, and Notes on Special Cases.
			Mothers.	Infants.	
I	Contracted pelvis—				
	1 para	87	1	2	Paralytic ileus.
	2 para	15	1	2	Repeat operation—post partum hæmorrhage.
	3 para	7	..	1	..
	4 para	1	..	..	..
	Not stated	4	..	..	..
	Total	54	2	5	..
II	Obstructed labour—				
	1 para	31	1	..	Maori—Four days in labour. Cause of death, sepsis.
	2 para	7	..	..	..
	3 para	5	..	1	In one case the complication was ruptured uterus; two previous confinements very difficult, with dead infants; hysterectomy performed; mother recovered, baby died.
	4 para	2	..	..	..
	5 para	2	..	1	..
	6 para	1	..	1	..
	Not stated	3	..	..	..
	Total	51	1	3	..

Table VIII—continued.

Group.	Reason given for Operation and Parity.	Number of Cases.	Number of Deaths.		Cause of Deaths of Mother, and Notes on Special Cases.
			Mothers.	Infants.	
III	Placenta prævia—				
	1 para	10	1	1	Paralytic ileus.
	2 para	1	..	..	..
	3 para	1	..	..	..
	4 para	1	..	..	..
	7 para	1	..	1	..
	11 para	1	..	..	..
	Not stated	3	..	..	..
	Total	18	1	1	..
IV	Accidental hæmorrhage—				
	1 para	3	..	3	One case complicated by albuminuria.
	2 para	1	..	1	..
	4 para	2	..	1	One case complicated by toxæmia. (B.P. 130/118 + albuminuria) infant lived.
	11 para	1	..	1	..
	Not stated	2	1	2	Complications: Cerebral embolism, suppression of urine. Cause of death, uræmia; infant stillborn.
	Total	9	1	8	..
V	Eclampsia—				
	1 para	4	2	..	..
	2 para	1	..	..	..
	3 para	2	..	..	..
	Total	7	2	..	..
VI	Toxæmia—				
	1 para	12	1	1	Twin pregnancy; goitre. Causes of death, dyspnœa due to goitre.
	2 para	1	..	..	..
	3 para	1	..	..	..
	6 para	1	..	..	..
	Total	15	1	1	..
VII	Other conditions—				
	Heart disease—				
	1 para	3	..	..	..
	2 para	2	..	..	..
	Pulmonary tuberculosis—				
	1 para	1	..	1	..
	Delayed labour—				
	1 para	1	..	..	Twenty-four hours' trial labour; infant 6¾ lb. No other cause given.
	No reason—				
	1 para	1	..	..	..
		8	..	1	..

Maori Maternal Mortality.

Table IX shows the Maori maternal mortality by causes for the seven years 1930–36. A substantial and satisfactory reduction from a rate of 6·46 to 4·96 is shown. Though I have been unable to get accurate returns of the number of these patients confined in hospitals, there can be no doubt that, due to the efforts of the Medical Officers of Health and their district nurses, the Native race is taking advantage of hospitals to a very much greater extent and becoming alert

to the dangers of neglect in difficult cases, and to these facts and to the increase in the number of district nurses to Natives I attribute the improvement. The Committee now inquiring into the maternity services of New Zealand are making a close investigation into the problem of maternity services for the Maoris, and there is every reason to hope that with better education of the Native race in general hygiene in the value of European methods in obstetrics the death-rate will drop still further.

Table IX.—Showing the Maori Mortality by Causes for the Seven Years 1930–36.

Cause of Death.	1930.		1931.		1932.		1933.		1934.		1935.		1936.	
	No.	Rate.	No.	Rate.	No.	Rate.	No.	Rate.	No.	Rate.	No.	Rate.	No.	Rate.
Puerperal sepsis following childbirth	5	2·35	5	2·16	5	1·82	7	2·37	3	1·01	7	2·15	6	1·65
Hæmorrhage, accidents of labour, thrombosis, phlegmasia, embolism, and following childbirth not otherwise defined	12	5·65	9	3·89	14	5·10	14	4·75	8	2·68	10	3·07	12	3·31
Toxæmia, albuminaria, and eclampsia	..	..	..	..	1	0·36	1	0·34	..	..	1	0·30	..	..
Accidents of pregnancy ..	3	1·41	2	0·87	1	0·36	..	..	4	1·34	3	0·92	..	..
Total, maternal causes (excluding septic abortion)	20	9·42	16	6·92	21	7·65	22	7·46	15	5·03	21	6·46	18	4·96
Septic abortion	..	..	..	..	..	..	2	0·68	3	1·01	3	0·92	2	0·55

PART III.—PRIVATE MEDICAL AND SURGICAL HOSPITAL.

Ninety-five private medical and surgical hospitals, providing 1,375 beds, are now licensed, a reduction of six since last year. Though the majority of the smaller hospitals are converted houses, and not as convenient as could be desired, they are efficiently equipped for the class of patients for which they are designed. All the larger medical and surgical hospitals are under the control of religious orders, and it appears obvious that ordinary private enterprise cannot cope with modern requirements, and that the future development of all private hospitals depends on either the combined efforts of the medical practitioners of the district or of religious orders or others to whom the financial return is not the main object.

Acknowledgment.

I wish to express my sincere thanks to the many members of the medical and nursing profession for their helpful and valuable co-operation.

APPENDIX A.

PROGRESS OF CAMPAIGN AGAINST TUBERCULOSIS IN NEW ZEALAND.

The campaign against tuberculosis in New Zealand has proceeded along similar lines as reviewed in the July, 1934, issue of the Bulletin of the International Union against tuberculosis. This article, however, will serve to provide up-to-date statistical information and indicate additional administrative measures taken in the campaign against this disease.

The following table shows the tuberculosis death-rate per 10,000 of population :—

Year.	Pulmonary Tuberculosis.	Other Forms of Tuberculosis.	All Forms of Tuberculosis.
1933	3·24	0·92	4·16
1934	3·32	0·88	4·20
1935	3·17	0·71	3·88

The 1935 figure is the lowest so far recorded in this country.

Tuberculosis of the respiratory system took sixth place in point of the number of deaths resulting from principal causes during 1935, ranking after heart-disease, cancer, cerebral hæmorrhage and apoplexy, accidents, and nephritis in that order. Of the 576 deaths from tuberculosis in 1935, 471 were assigned to pulmonary tuberculosis and 105 to other forms of the disease.

Pulmonary Tuberculosis.

The following table shows the downward movement of the death-rate at various ages and for the sexes separately since the beginning of the century. An interesting feature of the table is the failure of the young adult female of twenty to twenty-five years to participate in the improvement during 1909–28. The death-rate for females in this age-group, however, showed a fall for the period 1929–33 and for 1934–35.

Tuberculosis of the Respiratory System: Average Yearly Number of Deaths per 10,000 of Population by Sex and in each Age-group.

Age.	1899–1903.	1904–08.	1909–13.	1914–18.	1919–23.	1924–28.	1929–33.	1934.	1935.
Males.									
0– 1 ..	2·1	0·8	0·9	..	0·3	0·4	0·5	0·3	0·6
1– 5 ..	0·7	0·6	0·6	0·5	0·5	0·3	0·3		
5–10 ..	0·6	0·5	0·4	0·3	0·2	0·1	0·1	..	..
10–15 ..	0·4	0·9	0·6	0·3	0·3	0·3	0·2	0·1	..
15–20 ..	4·4	4·3	2·9	3·0	1·9	1·6	1·4	0·6	1·2
20–25 ..	11·4	8·4	7·3	11·4	6·5	4·7	3·5	3·1	2·9
25–30 ..	14·9	9·6	8·5	10·7	9·6	7·1	4·8	4·6	4·6
30–35 ..	11·9	11·4	10·0	10·5	9·6	8·4	5·0	5·3	3·8
35–40 ..	15·6	11·3	10·5	10·0	8·5	8·2	6·5	5·3	5·6
40–45 ..	11·0	9·5	9·7	9·7	9·3	7·4	6·4	5·4	5·9
45–50 ..	10·0	10·3	9·8	8·6	9·1	7·3	6·7	5·6	5·5
50–55 ..	12·1	11·6	9·9	7·2	8·6	7·4	5·6	6·9	5·2
55–60 ..	12·7	10·4	12·0	7·3	8·3	7·8	7·1	7·5	6·4
60–65 ..	14·4	10·0	7·8	6·7	8·3	6·1	6·3	5·3	6·5
65–70 ..	15·6	10·8	9·9	6·3	5·4	5·5	7·4	6·5	8·5
70–75 ..	10·1	10·6	7·6	6·7	5·6	4·8	7·6	6·4	3·9
75–80 ..	7·9	4·9	7·3	3·3	4·9	4·0	2·8	6·6	3·8
80 and over ..	8·4	4·3	2·9	4·0	3·4	3·7	2·4	..	..
All ages ..	7·9	6·7	6·0	5·7	5·3	4·4	3·7	3·5	3·4
Females.									
0– 1 ..	2·0	1·5	1·5	0·6	0·4	0·3	0·3	0·2	..
1– 5 ..	0·8	0·6	0·4	0·3	0·2	0·2	0·1		
5–10 ..	0·6	0·2	0·5	0·2	0·2	0·4	0·2	..	..
10–15 ..	2·1	1·6	1·3	0·7	1·0	0·5	0·3	0·6	0·2
15–20 ..	8·2	7·7	6·3	5·9	5·6	4·6	2·6	2·9	2·5
20–25 ..	12·4	11·6	8·9	8·8	8·8	8·5	6·6	5·0	6·5
25–30 ..	14·1	13·5	11·2	10·8	10·0	8·2	7·8	8·3	5·2
30–35 ..	12·2	10·1	10·4	8·7	7·9	5·8	5·9	5·5	6·5
35–40 ..	12·4	8·8	9·3	7·3	7·8	5·4	4·6	3·4	3·9
40–45 ..	9·9	8·7	7·0	6·5	6·6	5·2	3·5	3·5	2·3
45–50 ..	8·1	8·7	5·1	4·4	5·3	4·2	3·5	3·1	3·1
50–55 ..	6·8	6·9	6·0	5·1	4·7	3·9	2·7	3·9	3·5
55–60 ..	7·8	5·1	5·1	4·6	4·1	3·8	3·0	1·4	2·1
60–65 ..	6·0	5·1	5·7	2·9	5·0	5·2	2·8	1·2	2·6
65–70 ..	9·3	5·8	7·1	4·4	4·2	3·0	3·3	4·3	2·0
70–75 ..	5·6	4·3	6·0	4·1	3·2	2·7	2·3	3·9	3·1
75–80 ..	10·7	5·1	2·5	2·7	3·7	4·8	3·1	5·5	3·8
80 and over ..	3·4	2·6	0·9	1·4	2·1	1·3	1·2	..	1·9
All ages ..	7·3	6·5	5·7	4·9	4·8	4·0	3·2	3·4	2·9

Types of Tuberculosis.

Although very little investigation of the type of bacillus responsible for cases of tuberculosis other than pulmonary has been carried out in New Zealand, the small amount of information available points to approximately 80 per cent. of the cases being due to human type and 20 per cent. to the bovine type of bacillus. The decline in pulmonary tuberculosis inevitably leads to lessened risk of contacts contracting non-pulmonary tuberculosis due to the human type of bacillus, and the campaign against pulmonary tuberculosis is therefore the method of attack likely to have the greatest effect on the morbidity and mortality from non-pulmonary forms of the disease.

The following table shows the accommodation available in public institutions during the year ended 31st March, 1935 :—

Institutions.	Number.	Number of Beds.	Number of Patients treated.
Sanatoria	5	580	919
Special tuberculosis hospitals	3	233	294
Totals	8	813	1,213

In addition, 285 beds were available in other institutions controlled by Hospital Boards. New Zealand thus has nineteen beds for every ten deaths from tuberculosis.

Preventive Work.

Tuberculosis Clinic.—A definite advance in the campaign against this disease was the establishment of tuberculosis clinics in various parts of the North Island of New Zealand similar to those which have been operating for a number of years in the South Island. There is now in operation in the North Island a system whereby a tuberculosis specialist visits the various centres in the Hospital Board districts at regular intervals, and, in co-operation with the Medical Superintendents and medical practitioners, examines and gives an opinion of any cases referred to him. It is hoped by this means to achieve the following objects : (*a*) To follow up and keep under observation cases that have been discharged from sanatoria ; (*b*) to follow up and keep under observation the contacts of actual cases of tuberculosis ; (*c*) to arrive at an earlier diagnosis in the case of suspected cases, so that sanatorium treatment may be instituted at the most favourable period.

School-children.—The percentage of all forms of tuberculosis found in routine examinations of school-children in 1935 was 0·06 for European children and 0·46 for the Native race. The supervision of children in contact with tuberculosis cases is carried out by the School Medical Officers, and exact records are now available of over a thousand such children. Co-operation is maintained with tuberculosis specialists attached to sanatoria and hospitals to ensure periodic expert examination. The value of this work is demonstrated by the opportunity it gives not only for early and appropriate treatment when required, but also more generally by measures for improving health and nutrition, thus preventing the onset of disease.

The Children's Health Camp Movement mentioned in the Bulletin article of July, 1934, continues to receive public support. Some 2,500 delicate and undernourished children were treated in these camps during the year 1935. The finance of these camps benefited to the extent of some £11,000 from the sale of Christmas health stamps and donations through the Post and Telegraph Department, and the assistance of various voluntary organizations.

Nutrition.—The question of nutrition of school-children has received special consideration. Height and weight and age survey of some 40,000 New Zealand children demonstrated that our children are both taller and heavier than they were twenty years ago. However, for various reasons it has been found that many children fall short of their potential level of positive health and vitality. To guard against this from a dietetic standpoint a considerable amount of work has been carried out in arrangements for supplying children at school with half a pint of milk daily free of charge. Space does not permit of detailed information regarding the many schemes projected. Government and municipal subsidies and the generosity of voluntary and private philanthropic organizations give material assistance. The Government has recently made a grant of £30,000 for the supplying of milk to school-children. From observations in New Zealand schools it may be regarded as proven that the addition of half a pint of milk to the usual dietary of children will, generally speaking, result in improved nutrition and health. The average consumption of milk in New Zealand has recently gone up from half a pint per person to five-eighths of a pint per day, presumably as a result of propaganda and of schemes for milk-distribution at school. The Department of Health supervises as far as possible practical schemes for milk-distribution.

Housing.—The housing question—of such paramount importance in dealing with the problem of tuberculosis—is receiving attention. The Government has formulated a housing-scheme for the amelioration of undesirable housing-conditions that exist, particularly in the city areas of the larger towns, and for a higher standard of housing generally throughout the Dominion. A Housing Department has been created in charge of a Director of Housing Construction under a Parliamentary Under-Secretary.

National Health Insurance.—National health insurance is tending to become universal, and its adoption in New Zealand in some form or another in the near future is assured. It will be invaluable in dealing with the tuberculosis problem. In the meantime the Government has passed legislation providing for an invalidity pension for those permanently handicapped, which should afford relief and a sense of security to many chronic suffers from tuberculosis.

Tuberculosis amongst Nurses.

A study to determine the incidence of tuberculosis infection in a training-school for nurses attached to one of the New Zealand public hospitals was carried out by a committee of inquiry appointed by the honorary medical staff of the institution concerned (the Public Hospital, Dunedin). The following is a quotation from a report of the committee's investigation as prepared by D. W. Carmalt Jones, M.A., M.D., Professor of Systematic Medicine, Otago University :—

"In Europe, North America, and New Zealand there appears to be an unduly high incidence of tuberculosis among young nurses, who present the following peculiarities : They come from sheltered homes, at a period of life when according to clinical experience the incidence of pulmonary tuberculosis is high among women ; they have not been previously exposed to infection, and their immunity is low, they are called upon to work unusually, though not unduly, hard, and they are apt to tax their strength by indulgence in amusement which shortens their rest. In these circumstances they are brought into intimate contact with declared cases of tuberculosis, and also with open but undeclared cases. It is the duty of hospital authorities to protect these women ; the incidence of the disease in New Zealand is actually low, but the injury to health and the social and economic disabilities caused by it need no emphasis. After the investigation described in this paper the committee advised the enforcement of the most rigid medical asepsis, with special reference to the control of cough and disposal of sputum, the cleansing of sputum-pots, the sweeping of wards containing tuberculosis patients, the risk of dust in changing patients' bed-linen, and the wearing of overalls and cleansing of hands."

As a result of this investigation a circular letter was despatched to all Medical Superintendents of Hospitals and tuberculosis institutions submitting the following recommendations for the protection of nursing staffs against tuberculosis infection :—

(1) Careful selection of candidates for the nursing staff.
(2) Complete medical examination before acceptance. This should include an X-ray examination of the chest. This examination should be repeated at least yearly during the period of training.
(3) A sufficient preliminary training in elementary bacteriology and medical and surgical asepsis before entering on ward duties. This should include practical demonstration.
(4) The institution of a complete technique of medical asepsis in the nursing care of any cases of tuberculosis in the hospital.
(5) The application of this technique to all new admissions until a careful and complete diagnosis is made.
(6) Adequate supervision of the nurses "off duty" period to ensure that sufficient rest and sufficient exercise in the open air are taken.
(7) A strict rule should be made that all nurses should report any slight personal illness or injury.

Tuberculosis in the Maori Race.—At all ages the Maori shows undue susceptibility to infection by the tubercle bacillus. The following table shows a comparison between the Maori and European death-rates per 10,000 of the respective populations for the five years 1930–34 for pulmonary tuberculosis, other forms of tuberculosis, and all forms of tuberculosis :—

Tuberculosis Death-rate per 10,000 of Respective Populations.

Year.	Pulmonary.		Other Forms.		All Forms.	
	Maori.	European.	Maori.	European.	Maori.	European.
1930	28·38	3·71	5·65	0·84	34·03	4·55
1931	32·40	3·47	4·23	0·80	36·63	4·27
1932	34·35	3·35	7·30	0·87	41·65	4·22
1933	28·51	3·24	7·69	0·92	36·20	4·16
1934	32·88	3·32	7·37	0·88	40·25	4·20
1935	32·40	3·17	7·86	0·71	40·26	3·88

Although during the past few years the services for the prevention and cure of disease amongst the Maoris have been definitely strengthened, nevertheless it is still true that there is all too much neglect of hygienic principles and all too much sickness. The problem is economic as well as medico-hygienic, and until the Maori is better housed and becomes self-supporting educative measures are largely doomed to failure. For this reason alone those who are interested in the physical welfare of the Maori race must view with appreciation the attempts under the Native Land

Development Schemes to turn the Maori into a self-dependent farmer. Improved housing on these farm settlements by the reduction in overcrowding will have a marked effect in lessening the incidence of respiratory infections, and particularly of pulmonary tuberculosis, which is the present-day scourge of the Maori race.

The measures adopted in this country for combating tuberculosis include—

(1) Notification.
(2) Inspection of the homes of tuberculosis subjects and the education of the patients.
(3) The medical examination of contacts in the home.
(4) Organization of health camps for children likely to become victims of tuberculosis.
(5) Medical examination of school-children.
(6) Use of open-air schools.
(7) Establishment of tuberculosis clinics.
(8) The segregation of chronic cases in public hospitals.
(9) The treatment of cases in sanatoria.
(10) Amelioration of undesirable housing-conditions.
(11) Investigations into incidence of tuberculosis among specially selected groups.
(12) Extensive infant and maternity welfare services.
(13) Testing for milk infection in bacteriological laboratories.
(14) Examination of cows and destruction of those found infected with tubercle. In addition, tuberculin testing of herd when requested by the farmer or when compulsory under various municipal by-laws regarding milk-supplies.

SUMMARY.

The death-rate for all forms of tuberculosis per 10,000 of the population was 3·88, the lowest so far recorded. Tuberculosis of the respiratory system took sixth place in point of the number of deaths from principal causes during 1935. The downward movement of the death-rate for pulmonary tuberculosis since 1899 is shown. Females at twenty to twenty-five years of age failed to participate in the improvement during 1909–28, but since then the death-rate for this group has fallen. Approximately 80 per cent. of the cases of tuberculosis in New Zealand are due to the human type and 20 per cent. to the bovine type of bacillus. New Zealand has nineteen beds for every ten deaths from tuberculosis. There has been an extension of the tuberculosis clinic service. Over a thousand records are available of children in contact with tuberculosis cases. Examination of these contacts is carried out by specialists. Two thousand five hundred delicate and undernourished children were treated in children's health camps. A sum of £11,000 was obtained for these camps through the sale of Christmas health stamps. Arrangements were made to supply school-children in many areas with half a pint of milk daily free of charge. The Government made a grant of £30,000 to assist this service. Improved nutrition and health among children has resulted from this additional milk ration. The housing question is receiving attention, the Government having created a Housing Department. National health insurance will probably be adopted in some form or other in the near future. Invalidity pensions are being granted. A summary of an investigation into tuberculosis amongst nurses is given, and reference is made to tuberculosis in the Maori race. A list of measures adopted for combating tuberculosis is given.

APPENDIX B.

CARE AND AFTER CARE OF THE MAORI TUBERCULOUS.

By Dr. Turbott, Medical Officer of Health.

Planning a Scheme.

The Maori race in New Zealand have equal status with the Whites. The Maori tuberculous have theoretically equal privileges in diagnosis and treatment. Medical practitioners are available to all but the most remote; public hospitals are open for diagnosis, classification, and treatment; and sanatoria are ready to care for the early case or train the chronic advanced tuberculous, when such are referred to them through the public-hospital system. In addition, and a privilege peculiar to the Maori, the Health Department employs district nurses to Natives, with duties both curative and preventive, who seek out the Maori sick, endeavouring in the tuberculous to persuade the Natives towards correct diagnosis, institutional care, and treatment. Theoretically, then, there appears little excuse for wide discrepancies in care statistics, as between Maori and Pakeha.

The writer, in 1933, carried out a thorough survey of a typical Maori county population to determine the true position. Maori morbidity-rate from tuberculosis, all forms, was 56·8 per 1,000. The mortality for all forms was severe, 49·4 per 10,000, as compared with 4·5 per 10,000 in Europeans. There was a widespread failure to seek aid, although the facilities described above were adequate and available. Of the tuberculous, only 26·9 per cent. obtained hospital treatment, 2·6 per cent. sanatorium treatment, 9·5 per cent. domiciliary treatment by medical practitioners, while 60·8 per cent. had no institutional or practitioner's treatment whatsoever. It became immediately obvious that the facilities as provided for the European tuberculous were in practice being neglected by the Maori.

This led to a search for underlying causes. General educational standards and attainments were inferior to European ones, and particularly health education. Perception of the real cause and means of spread of tuberculosis was lacking. Pulmonary tuberculosis was called the wasting sickness, the argument commonly presented that it was sent as an affliction from heaven, and European attempts at prevention therefore useless. Alternately, it was recognized as "running in families," and strongly regarded as hereditary in origin. The services of a medical practitioner or district nurse were not sought in a large number of cases. In the minority who had attained hospital treatment there was rarely the disposition to remain a sufficient time in the institution. The place was strange, the staff of another race speaking a language unintelligible to the older patients, and the urge was always to get away home where their wants would be readily understood, and where friends could come and go as they pleased. The few who succeeded in reaching sanatoria rarely did well. As these institutions were usually hundreds of miles away from the home county there was no possibility of relatives visiting, and among a European nursing staff, with every wish to further their recovery, they usually wilted and went downhill. The psychological emerged as a weighty factor in explaining non-utilization of institutional facilities. Poverty accounted for some holding back; rather than receive unpayable accounts afterwards, they stayed at home, some of the Maori people having a fierce pride and independence.

In the field work it was definitely proven that the bovine form was a negligible factor in the incidence of Maori tuberculosis. The infection was human. Ready spread was achieved through contact, rendered easy by overcrowding in defective houses, by faulty hygiene in the home, and by malnutrition. Poverty was not always to blame by the faulty environment, though playing a potent part; often lack of desire for betterment maintained conditions facilitating spread of infection from person to person.

The accurate knowledge gained from the survey enabled the planning of care and follow-up work suited to the peculiar needs of these people. Any proposed scheme should have educational value, be psychologically suited to the Natives, should break the chain of contact infection, and help ameliorate faulty environmental conditions. Such a scheme should be limited to small proportions until proved successful, and be possible of extension rapidly to cover all Maoris when this end was achieved. A care and after-care scheme was begun at the conclusion of the survey, and in the same county, covering about 4,000 Maori population. After three years' trial, it has proved sufficiently successful to recommend for adoption for Maoris throughout New Zealand.

Scheme in Operation.

At the end of the field survey there were 115 Maori cases of tuberculosis in the county. It was impossible to hospitalize these, the county hospital having only thirty beds for all purposes. A district nurse was detailed for the special work of a tuberculous visitor, herself a Maori, and the 115 cases came under her care. None of the cases were early in type. Follow-up work was undertaken along these lines:—

1. Regular Visitation of the Cases:—

(*a*) To oversee the domiciliary treatment of the case, always keeping in view the hope of a clinical cure. Rest in bed for long periods until the sputum was negative at repeated tests was aimed at. Periodic X-ray check of progress was arranged at the county hospital, whenever it was possible to transport the case. This base hospital admitted those cases suitable for special care or treatments—*e.g.*, artificial pneumothorax, and those few cases where it proved impossible to arrange rest at home, or continuous proper feeding and care. On the field the nurse supplied necessary drugs and medicines, and taught the proper nursing care of the tuberculous case. She arranged through the base hospital the supply, in cases of poverty, of extra food, of extra blankets and clothes.

(*b*) To teach the patient and other members of the household how infection was spread. Sputum flasks were provided; the proper use and care of these, and correct sputum disposal was taught. The patient was encouraged to reduce handling, kissing, or touching others, especially children, while the other household members were taught how to protect themselves—*e.g.*, to wash hands immediately after touching the patient, or anything belonging to the sick person.

(*c*) To teach barrier nursing of the case, and segregation within the home, either in a separate room, out on a porch or veranda, or, failing that, in a one-room home, at one end of the room, or, better still, in a tent outside. Separate bed and bedding, towels, clothes, separate dishes, and personal hygiene requirements were taught, together with the correct sterilization and separate washing of these. All of this was new ground to the Maori, who lives a communal form of life, crowded together, and sharing common food utensils, clothes, towels, and bedding.

(*d*) To demonstrate to the healthy Natives in the county, by means of his constant visiting, exactly which homes were tuberculous, and as the knowledge of germ-spread of tuberculosis gradually disseminated throughout the county, thus lead to less visiting of dangerous households. House-to-house visitation is a daily habit in Natives living a communal form of life, and the Maori has a custom called " hongi " of flattening nose against nose as a salutation. The regular visitation by the nurse did have a wonderful effect in advertising tuberculous homes, so much so that some of the patients complained of being segregated too much, and the nurse had to teach that it was possible to visit cases in a safe manner.

2. Constant watchfulness was maintained for new cases :—

Throughout the county the tuberculosis nurse formed a new interest for the Natives, and the Maoris themselves sought her out with information of suspected cases, when chest troubles arose. There was working in the county as well the usual district nurse to Natives, who also reported to the special nurse any suspicious chest cases. All suspicious cases were taken to the base hospital for clinical examination, radiograms, and sputum tests. If proven tuberculous, these new cases were added to the list of the special nurse. If the base hospital considered advisable, they were hospitalized until considered fit to come under the care of the nurse in their own homes. Occasionally unsuspected cases were reported from the hospital from admissions for other complaints, and these were later brought under the scheme.

3. Regular check was kept of the health of all contacts, adults and children, in the tuberculous households :—

(*a*) Physical examinations were arranged if normal health failed, and in these circumstances special X-ray check was made at the base hospital.

(*b*) Annual X-ray pictures of the children contacts were made, to detect any possible early active infection.

(*c*) In some cases of poverty, extra food or clothes were arranged for the contacts.

4. It was expected that this tuberculous home supervision would fail to achieve the necessary response in some cases, that there would be some unteachables, and some incorrigibles. Where the teaching could not or would not be assimilated, some further form of segregation would be required. It was planned originally to have a farm colony or settlement for these cases. So far it has not been necessary to proceed with this part of the scheme, although the necessary land has been given by the Maoris within the county.

Results and Future Plans.

The field follow-up work described above has now been in operation three complete years. The educational process was a slow one, but surprisingly successful as the Maori population came to understand the nature of tuberculosis, its cause, and its method of spread. The first year was one of uphill struggle, with failures, but enough teaching successes to justify decided optimism. The second year was one of rapid Maori comprehension, of consolidation, and universal acceptance. The third year has shown the scheme grafted into the normal life of the community. Tuberculous cases are being segregated within their own homes, with occasional use of the base hospital in particular cases for special reasons. They are being barrier nursed, and contacts know how to protect themselves as far as is possible without absolute isolation from the case. It has been a surprisingly but happy feature, in the poor and overcrowded tuberculous homes, to find the teaching assimilated and carried out, with double sets of everything, one for the patient looked after separately, and another communal set shared by all the contacts. As the economic standard improves, as it has done generally lately, the teaching is having a wider influence and bearing fruit in individualism in personal and family hygiene.

It is somewhat early to attempt to evaluate this field demonstration of tuberculous care and contact supervision. There are most encouraging signs, however. The mortality in the demonstration area during 1933 was 49·4 per 10,000 for all forms of tuberculosis. The rates for the following years have been—1934, 49·4 per 10,000 ; 1935, 54·4 per 10,000 ; 1936, 24·7 per 10,000.

The morbidity of tuberculosis in the demonstration area was for all forms in 1933, the year of the survey, 56·8 per 1,000. After the next three years of watchfulness and progressive X-rays, 13 cases have been written off the scheme list as cured, and are in normal occupations. During the same three years 23 old cases have died, and 7 new ones developed, two of these being fatal. The morbidity-rate for all forms of tuberculosis at the close of 1936 was 32·1 per 1,000.

Of the seven new cases one was an adult chronic case and six were children, four of these in their teens, with chronic phthisis with rapid death. This is the new case incidence for the past three years 1934–36. There has been an encouraging and welcome fall in the acute fatal tuberculosis in children, from direct contact. During 1933, while the survey was in progress, five previously healthy children, the eldest of whom was fourteen years, contracted acute or miliary tuberculosis, with rapidly fatal termination. In the subsequent three years there were the above-mentioned two cases only.

The demonstration of tuberculous care among Maoris in this county appears to be successful in reducing the mortality and morbidity of the disease. This year, 1937, it is planned to provide a separate tuberculosis shelter in those cases where there is very poor housing, and where the teaching has not been assimilated as well as elsewhere. These shelters will replace tent and exposed veranda segregation, and be a great help in those one-roomed homes where the case has to be barrier-nursed at one end. They will be of permanent material, with three-way ventilation, of the " knock-down " type bolted together, readily transported on a lorry, and easily set up by the Maoris themselves on their own plot of land close to the house. When no longer required in that household, they will be disinfected, and removed for use elsewhere. Should this work successfully, it is planned thereafter to widen the scope of this tuberculous-care demonstration, from the county where it now operates, to cover and care for tuberculous Maoris throughout New Zealand. This particular form of tuberculous care seems psychologically suited to the Maori.

APPENDIX C.

THE DENTAL CONDITION AND DIET OF THE MAORIS OF MAUNGAPOHATU VILLAGE.

By J. Ll. Saunders, D.S.O., B.D.S. (N.Z.), and R. M. S. Taylor, D.D.S. (N.Z.)

The information here presented was obtained by the writers during a visit to Maungapohatu in May, 1936.

The village of Maungapohatu in the Urewera country is on a hillside at an altitude of 2,500 ft., and lies on the slopes of Mount Maungapohatu (5,000 ft.) which is part of the Huiarau Range. The village was formerly the stronghold of Rua, the Maori prophet. It is situated in a very large clearing, and many acres are covered with a good growth of braken fern (*Pteridium esculentum*), but little use is made of this inexhaustible supply of a nutritious and one-time staple food.*

These Maori folk prefer to obtain the white flour of the European, even though it has to be carried by packhorse over twelve miles of rough hills from the road.

Most of the men of the village are now employed by the Public Works Department at road-making camps in the district. When returning to the village for a "week-end" they generally take some stores in the form of flour or sugar.

The population of the village comprises thirty to forty children and about the same number of adults. Information in regard to the European foods bought was supplied by Miss I. Paulger, who has lived in the village for twelve years. Miss Paulger combines the offices of missioner, school-teacher, postmistress, nurse, and general adviser to the villagers, and all ordering of stores is done through her.

1. Dental Condition.

Thirty-six Maori children were examined, of whom 18 were males and 18 females. Their ages varied from four years six months to fourteen years six months.

Arches.—These were broad and well-formed, except in one case, where the arches were somewhat narrowed.

Articulation.—

	Cases.
Normal in	24
Angles Class I in	6
Angles Class II in	1
Angles Class III in	3
Close bite in	1
Lingual occlusion right molars in	1
	36

Calculus was present in 22 cases. With two exceptions, those showing no calculus were under eight years of age. No child under seven exhibited calculus.

Gingivitis was found to be present in all except 2 cases, a boy of thirteen and a girl of eleven In the younger children the condition was more a mild hyperæmia of the gingival tissues, but definitely abnormal.

B. Mesentericus Stain was present in all but 4 cases.

Dental Caries.—All teeth were carefully examined with mirror and probe. Only one perfect set was found—in a boy aged eleven years and five months. The total number of teeth examined was 887, of which 223, or 25·14 per cent., exhibited active caries to a greater or less extent. The distribution of caries can be studied to better advantage if the cases are divided into groups as under:—

Group A: Children whose permanent dentition (up to second molar) is complete, and all deciduous teeth have been shed.

Group B: Children whose dentition is in the transition stage from deciduous to permanent. This forms the largest group (18), and ages vary from six years four months to eleven years four months.

Group C: Children whose deciduous dentition is still complete, or nearly so. There are 7 children in this group, 2 of whom have four first permanent molars in addition to twenty deciduous teeth.

Analysis by groups: The teeth in Group A are all permanent teeth of comparatively recent eruption, and the incidence of caries is lower than in the other two groups. Only 9·90 per cent. of teeth are effected, as against 25·14 per cent. for the three groups. One child only has teeth entirely free from caries, and three children have only one cavity each.

In Group B, the percentage of carious teeth in the comparatively recently erupted permanent teeth is low—7·45 per cent.—but the percentage in deciduous teeth is very high—60·11. The average for the group for both permanent and deciduous teeth is 29·09 per cent.

Group C shows a remarkably high percentage of carious teeth, taking into consideration the fact that the oldest child in the group is aged only six years four months. The group shows 44·89 per cent. of carious teeth.

* The methods of preparation of fern-root and of other old Maori foods have been described in the *N.Z. Dental Journal* as follows: Buck, P. H., "The Pre-European Diet of the Maori," N.Z.D.J., Vol. XX, No. 90, May, 1925; Taylor, R. M. S., "Maori Foods and Methods of Preparation," N.Z.D.J., Vol. XXX, No. 147, November, 1934.

The adults were not examined in the same detail as the children. A number of mouths were inspected, however, and the dental condition was found to be very bad. Pyorrhœa is especially prevalent, and numbers of teeth appear to have been lost from this cause.

The following figures indicate the extent to which the teeth were affected by caries. (The usual classification is used—viz.: Class I, hard tissues only involved; Class II, pulp involved, but alive; Class III, pulp dead, supporting tissues of tooth may or may not be involved; Class IV, crown destroyed, periodontitis or alveolar abscess present.)

Total number of teeth examined, 887; total number of teeth carious, 223 (Class I, 186; Class II, 6; Class III, 23; Class IV, 8).

The details of the examination are shown in the accompanying table:—

Dental Examination of Maori Children at Maungapohatu, Urewera Country, May, 1936.

Case Number.	Sex.	Age in Years and Months.	Gingivitis.	Calculus.	Mesenteric Stain.	Shape of Arches.	Articulation.	Number of Teeth present.		Number of Carious Teeth.		Remarks.
								Permanent.	Deciduous.	Permanent.	Deciduous.	
Group A—												
1 ..	M	14 6	x	x	..	Good ..	Normal ..	28	..	5	..	..
2 ..	M	14 6	x	xx	..	,, ..	Perfect ..	28	..	2	..	..
3 ..	M	14 0	x	x	x	,, ..	Normal ..	28	..	1	..	One carious.
4 ..	M	13 8	..	..	x	,, ..	,, ..	28	..	3	..	..
5 ..	F	13 10	x	x	x	,, ..	Class I, close	28	..	4	..	..
6 ..	F	13 4	x	x	x	,, ..	Normal ..	28	..	1	..	One carious.
7 ..	M	12 7	x	xx	x	,, ..	Class I ..	27	..	5	..	..
8 ..	F	12 1	x	x	x	,, ..	,, ..	28	..	3	..	..
9 ..	M	11 5	x	x	x	,, ..	Normal ..	28	..	0	..	Perfect.
10 ..	M	11 9	x	x	x	,, ..	,, ..	28	..	6	..	..
11 ..	F	11 5	x	x	x	,, ..	Class I ..	28	..	1	..	One carious.
Group B—												
12 ..	M	11 4	x	x	x	,, ..	Normal ..	25	2	1	2	..
13 ..	F	11 3	x	x	x	,, ..	Right, Class II; left, normal	27	1	1	1	..
14 ..	M	11 2	x	x	x	,, ..	Class I ..	18	8	1	4	..
15 ..	F	11 2	..	..	..	,, ..	Close ..	14	8	2	3	..
16 ..	F	10 8	x	x	x	,, ..	Normal ..	19	5	2	5	..
17 ..	F	10 4	x	x	x	,, ..	,, ..	25	1	1	1	..
18 ..	M	9 8	x	x	x	,, ..	,, ..	12	12	1	8	..
19 ..	F	9 0	x	x	..	,, ..	Class I ..	20	3	2	3	..
20 ..	F	8 4	x	x	x	,, ..	Normal ..	12	12	0	7	..
21 ..	M	8 1	x	x	x	,, ..	,, ..	10	14	0	10	..
22 ..	F	7 7	x	..	x	,, ..	,, ..	11	12	0	8	..
23 ..	F	7 7	x	x	x	Very good	,, ..	12	12	0	2	..
24 ..	F	7 4	x	x	x	Narrow	Lingual occlusion right side	10	12	4	7	..
25 ..	M	7 0	x	x	x	Good ..	Normal ..	8	16	0	6	..
26 ..	F	7 0	x	..	x	,, ..	,, ..	8	14	1	10	..
27 ..	M	6 9	x	..	x	,, ..	,, ..	8	16	0	13	..
28 ..	M	6 8	x	..	x	,, ..	,, ..	6	16	2	11	..
29 ..	F	6 4	x	..	x	,, ..	,, ..	10	14	1	6	..
Group C—												
30 ..	M	6 4	x	..	x	,, ..	,, ..	..	20	..	5	..
31 ..	F	6 1	x	..	x	,, ..	Class III ..	1	18	0	13	..
32 ..	M	6 0	x	..	x	,, ..	,, ..	2	18	0	2	..
33 ..	F	5 3	x	..	x	,, ..	Normal ..	4	20	0	11	..
34 ..	F	5 1	x	..	x	,, ..	,, ..	4	20	0	13	..
35 ..	M	5 0	x	..	x	,, ..	Class III ..	..	20	..	16	..
36 ..	M	4 6	x	..	x	,, ..	Normal ..	..	20	..	6	..

2. Diet.

The foods most eaten are—

White bread and scones made in camp ovens.

Pork, usually boiled with vegetables as a stew.

Potatoes, thinly peeled and cooked with meat, or boiled separately, in which case the water is drunk.

Sowthistle (*puwha*), cooked with meat and potatoes, or boiled separately, is eaten in quantity throughout the year, especially in springtime, when it is very plentiful. The water in which puwha or other food has been boiled is seldom discarded.

Other foods commonly eaten are—

Maize, as "pop-corn" or steeped for several weeks in water and then boiled. If the crop is good, maize becomes a prominent feature of the diet.

Oatmeal: The making of porridge is fairly common.

Birds are not as plentiful as in the past, so they are eaten "while the supply lasts." After plucking and cleaning pigeons are preserved in fat, but tuis are eaten fresh. A small bird commonly snared is the *pihipihi* or "wax-eye." The process of its preparation is limited to plucking, and it is then fried in deep fat.

Foods which are sometimes eaten, though the supply is irregular, are—

Beef, generally wild, and it is understood that the internal organs are not eaten. Cattle are not now kept by the Natives, owing to the inevitable loss by ragwort poisoning. A few cows are kept near the village, but milk is practically absent from the diet.

Butter is sometimes bought with the stores.

Eggs: A few fowls are kept, and also eggs are sometimes bought.

A few carrots are grown and are eaten both raw and cooked.

Sugar: Compared with less isolated districts and with towns, not very much sugar is consumed, but the Natives are quite fond of it when it is available.

Jam is sometimes eaten, and is made occasionally in the village.

A fern known as *pikopiko* or "water fern" (*Asplenium bulbiferum*), when the leaves are young, is cooked with meat as a relish.

Kumeras, or sweet potatoes, are absent from the diet as they will not grow in the district.

Fish: A few eels are caught locally, and dried eels or other fish are sometimes taken to the village.

Other old Maori foods are so rarely consumed that they are of no significance in the diet.

Drinks: A great quantity of sowthistle water is drunk. Another common drink is weak tea, freshly brewed, and usually milkless, but with sugar added in most cases. Not much water is drunk. The water-supply is obtained from wells, from the creek, and from rainwater collected in various receptacles. There are no tanks in the village. The surrounding country is not a limestone formation.

An idea of the regular stores ordered may be obtained from the following:—

One family of two adults and six children ordered for three month's supply six 50 lb. bags of flour. Another family of two adults and one child ordered for the same period one 50 lb. bag of flour and three 70 lb. bags of sugar. For one adult and one child was ordered two 50 lb. bags of flour. The total order on that occasion by the Maoris of the village included thirty 50 lb. bags of flour and seven 70 lb. bags of sugar. Ostensibly this amount was intended to last for a period of three months, but with stocks already in hand it is possible that more would be consumed. Mention might again be made of the fact that odd stores are often taken to the village by a man returning home for a period. The total order of all stores for the Maoris of the village is of an average value of about £30 per three-monthly period.

3. Remarks.

It would appear that the physical condition of the diet does not compel such vigorous mastication as to result in efficient natural dental prophylaxis. The change from fern-root to white flour has deprived the Maori of a nutritious food which possessed valuable detergent properties.

The gingivitis observed was in all cases associated with the presence of soft-food debris in the dental crevices. In the older children salivary calculus also was present, particularly around the molar teeth. Apart from this, other local conditions that generally result in gingivitis were present,—namely, insufficient mechanical stimulus to the oral mucosa, and the lodging of finely divided particles of fermentable carbohydrate. While it appears unlikely that serious avitaminoses would occur, there are probably periods when the diet is deficient, and this must accentuate the oral conditions. The practice of eating the internal organs of small birds supplements the vitamin intake, and the assimilation of important constituents is further assured by the habit of drinking the water in which vegetables have been boiled.

One child displayed a tooth-brush of doubtful ownership. It would be absurd to suggest that this Native community should achieve dental hygiene by adopting the use of the tooth-brush. That any of them should be so aware of the tragedy of their dental condition as to make the attempt is truly pathetic. Very few people, even among the more enlightened members of our own race, are able to use a tooth-brush efficiently or to care for it in a manner beyond reproach. It seems evident, therefore, that the dental and oral health of these Maoris depends largely on the efficiency of natural prophylaxis through diet.

If the Maungapohatuans could be persuaded to give up the use of European white flour and revert to the use of fern-root, ample supplies of which are at their very door, it is probable that their dental and oral health and general bodily vigour would show a striking improvement. To bring about such a change in the present diet involves a psychological problem. Not only are pakeha foods easier to obtain, but they are also easier to prepare and to eat. Further, the adoption of pakeha ways increases the self respect of the modern Maori, who naturally desires to feel that in every way he is the equal of the European. Alternatively, the substitution of true wholemeal for white flour would be of great benefit, but the isolation of the village renders this change impracticable. Further, the popularity of white flour will remain secure until more people realize that the development of this product was one of the retrogressive steps of our civilization.

While the recent endeavours to encourage the Maori in the preservation of his arts and crafts are most laudable, it does not go far enough. The Maori should be shown that certain features of his ancestral culture are superior to the civilized equivalent, and every possible effort should be made to encourage him to blend the best features of that culture with only the best that the European can offer him.

Approximate Cost of Paper.—Preparation, not given; printing (1,304 copies), £90.

By Authority: E. V. Paul, Government Printer, Wellington.—1937.

Price 1s. 6d.]